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FEDERAL - STATE - PRIVATE
COOPERATIVE
SNOW SURVEY and WATER SUPPLY FORECASTS
for
OREGON

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE
and
OREGON AGRICULTURAL EXPERIMENT STATION
and
STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above
in cooperation with other Federal, State and private organizations.

AS OF
APR. 1, 1961

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Cooperative Snow Survey and Water Supply Forecast Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
COLORADO AND STATE OF UTAH	MONTHLY (JAN. -MAY)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER AND OTHER AGENCIES
COLUMBIA	MONTHLY (JAN. -MAY)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
UPPER MISSOURI AND STATE OF MONTANA	MONTHLY (FEB. -MAY)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
WEST-WIDE	OCT. 1, APR. 1, MAY 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR. -MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN. 15 - APR. 1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB. -MAY)	FORT COLLINS, COLORADO	COLO. AGR. EXP. STATION COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (FEB. -MAY)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
NEVADA	MONTHLY (FEB. -APR.)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN. -MAY)	PORTLAND, OREGON	ORE. AGR. EXP. STATION OREGON STATE ENGINEER
WASHINGTON	MONTHLY (FEB. -MAY)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB. -JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

Copies of these various reports may be secured from: Head, Water Supply Forecasting Section
Soil Conservation Service.
209 S. W. Fifth Ave., Portland 4, Oregon

PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB. -JUNE)	COMPTROLLER, WATER RIGHTS BR., DEPT. OF LANDS AND FORESTS PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB. -MAY)	CALIF. DEPT. OF WATER RESOURCES, SACRAMENTO, CALIF.

FEDERAL - STATE - PRIVATE
COOPERATIVE
SNOW SURVEY and WATER SUPPLY FORECASTS
for
OREGON

ISSUED

APRIL 8, 1961

Report prepared by

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and

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SOIL CONSERVATION SERVICE
209 S.W. 5TH AVE., PORTLAND 4, OREGON

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STATE CONSERVATIONIST
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DIRECTOR
OREGON AGRICULTURAL
EXPERIMENT STATION

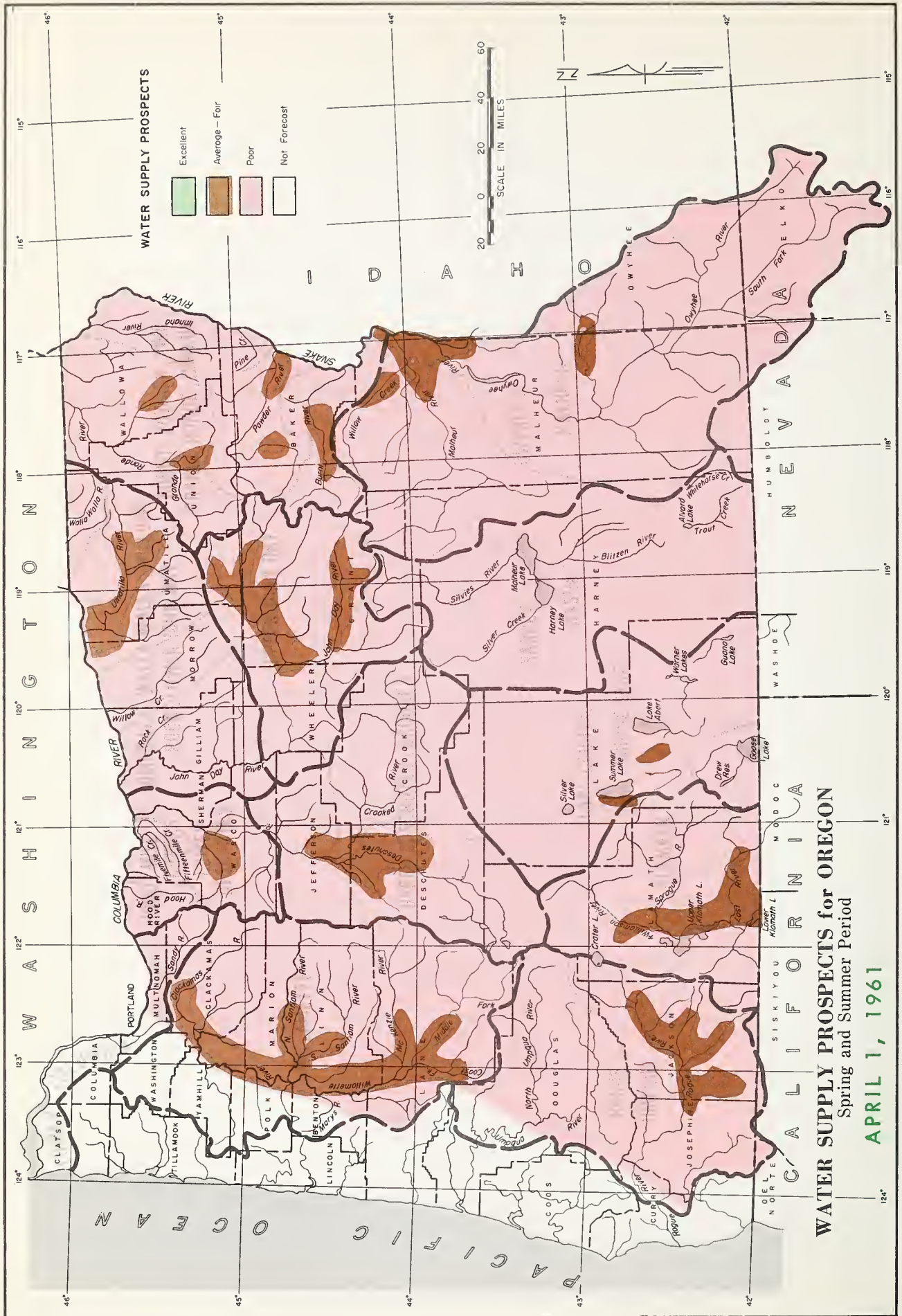
LEWIS A. STANLEY
STATE ENGINEER
STATE OF OREGON

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DETAILED WATER SUPPLY OUTLOOK BY MAJOR WATERSHED AREAS

OWYHEE, MALHEUR.....	AREA 1
BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA.....	AREA 2
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY.....	AREA 3
UPPER JOHN DAY.....	AREA 4
UPPER DESCHUTES, CROOKED.....	AREA 5
HOOD, MILE CREEKS, LOWER DESCHUTES.....	AREA 6
LOWER COLUMBIA.....	AREA 7
WILLAMETTE.....	AREA 8
ROGUE, UMPQUA.....	AREA 9
KLAMATH.....	AREA 10
LAKE COUNTY, GOOSE LAKE.....	AREA 11
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MAP AND INDEX OF OREGON SNOW COURSES.....(MAP)	
LIST OF COOPERATORS.....	INSIDE BACK COVER



WATER SUPPLY OUTLOOK for OREGON

APRIL 1, 1961

Oregon's 1961 irrigation water supply outlook has improved some because of greater than average increases in the snowpack in most portions of the state. Forecasts of expected streamflow in the irrigation season, April through September, have been raised from 5 to 20 percent and the general outlook is now "fair" to near "average" except for the Crooked River - Ochoco, Lost River - Gerber, Drew Creek - Lakeview, Silvies and Silver in Harney Basin, Malheur River and Owyhee areas where "short" water supplies will be apt to hold the outlook to "fair only".

SNOW COVER:

Water content of the mountain snowpack has increased abnormally during March at the highest elevations and now averages 79 percent on a state-wide basis. Percentage-wise the snowpack averages the lowest (65 percent) in the Willamette watersheds and the highest (89 percent) in the Klamath Basin. Almost completely missing is the low elevation snow which usually contributes heavily to a good runoff.

SOIL MOISTURE:

Moisture in the soil mantle (top 4 feet) under the snowpack has improved satisfactorily and will favor runoff.

RESERVOIR STORAGE:

Total water stored in 26 large reservoirs in the state now averages 88 percent of last year on this date and 85 percent of average. However, some reservoirs, including Owyhee, Warm Springs, Agency Valley, Antelope, McKay, Ochoco, Fish Lake, Fourmile Lake, Gerber, Clear Lake and Drews Valley are either very "short" on stored water supplies or can expect very limited inflow during the balance of the water year.

STREAMFLOW:

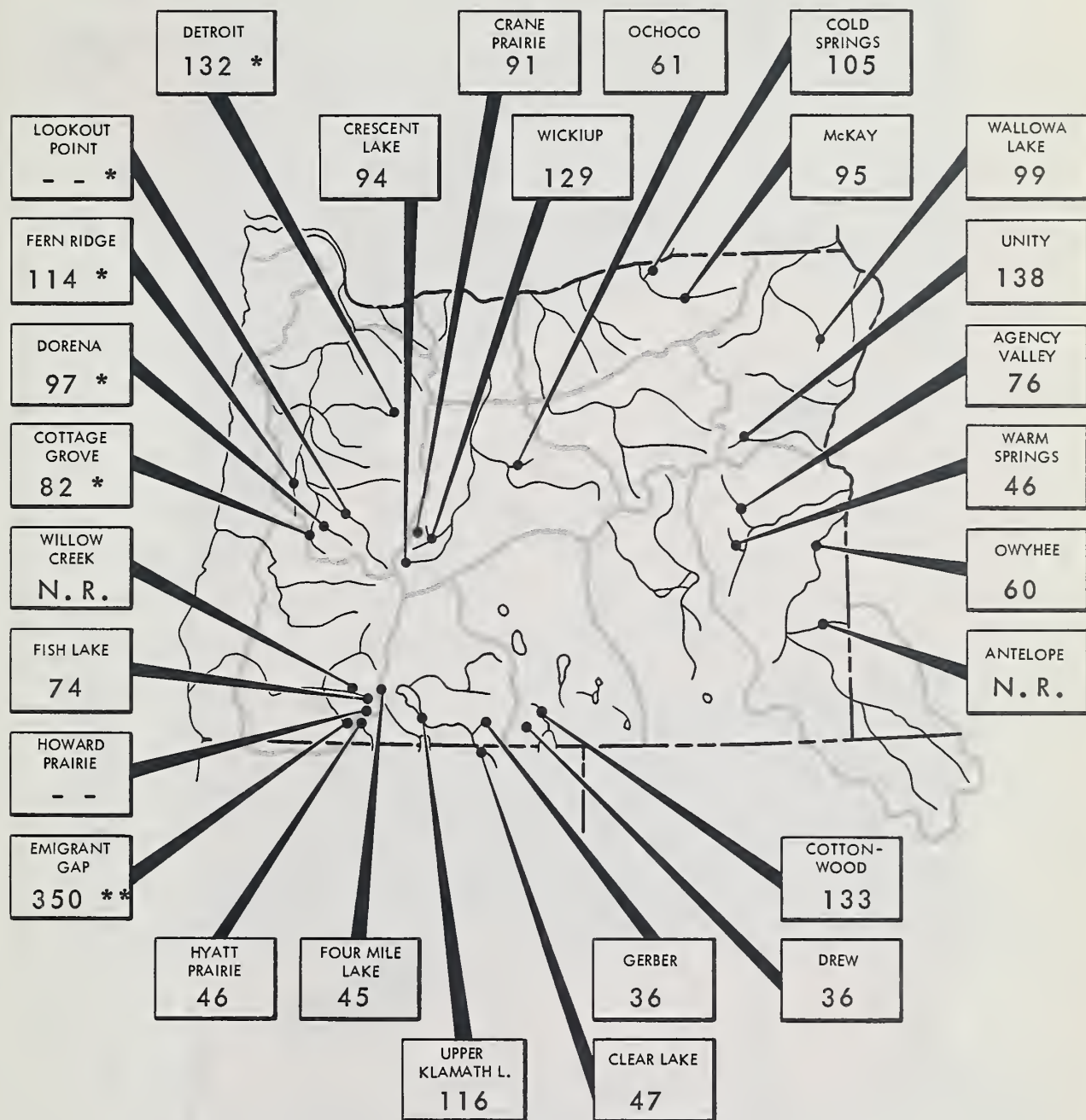
In general, streamflow during the coming irrigation season (April-September) will be about equal to or less than last year.

Forecasts of water runoff for the next six months vary from 33 percent of average (1943-57) on Owyhee River and 29 percent average for inflow to Drews reservoir up to 96 percent on Catherine Creek.



STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

APRIL 1, 1961

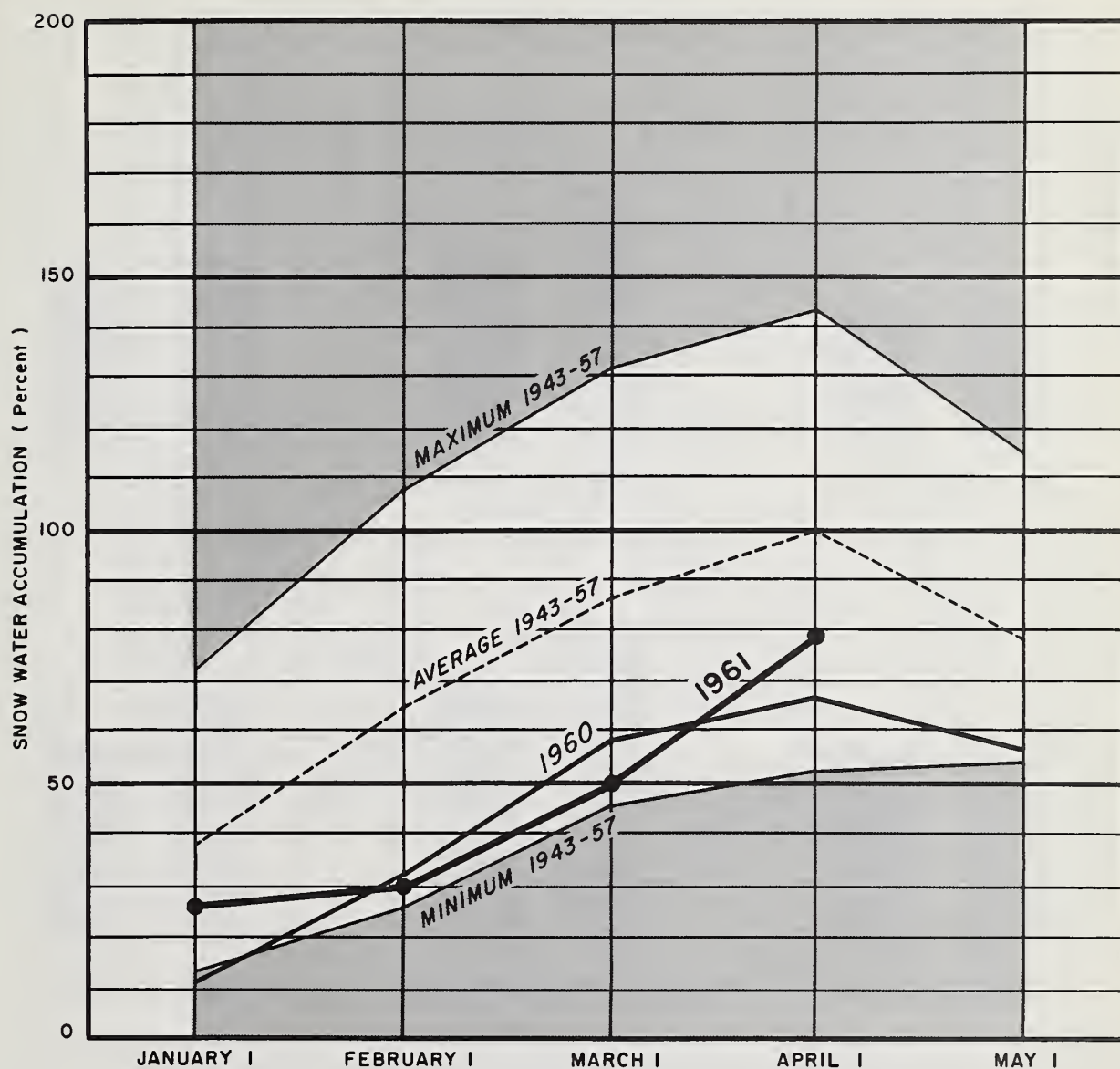


* - Multiple purpose reservoir - space reserved primarily for flood runoff.
N.R. - No report.

** - Capacity of reservoir greatly increased but current storage compared with previous average.

SNOW WATER ACCUMULATION in OREGON

APRIL 1, 1961

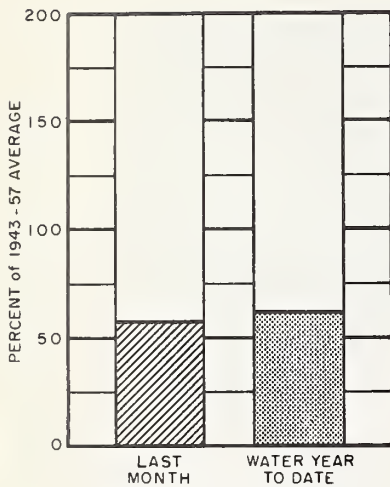


Above normal snow accumulation during March resulted in a 29 percent increase in the statewide snowpack. Snow measurements taken about April 1st indicate that the pack is now 79 percent of the 1943-57 average accumulation for April 1st.

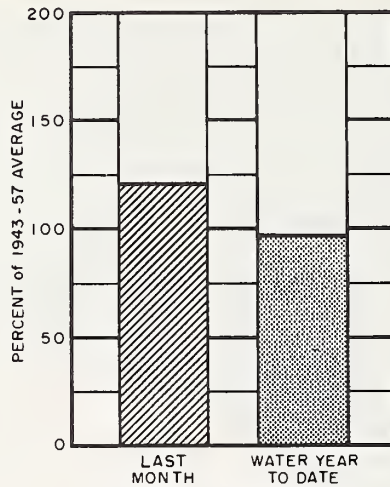
The "snow crop" has likely reached its peak and if so, the state as a whole is 21 percent below average.

CURRENT OREGON STREAMFLOW

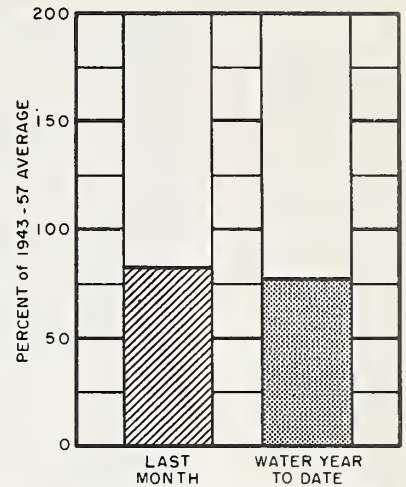
APRIL 1, 1961



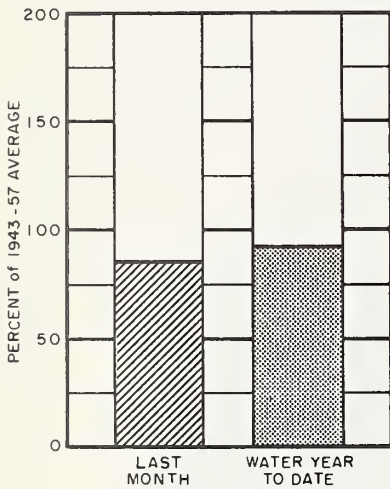
Owyhee Res. net inflow



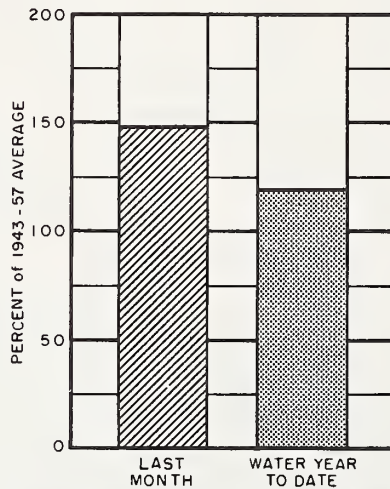
Umatilla near Umatilla



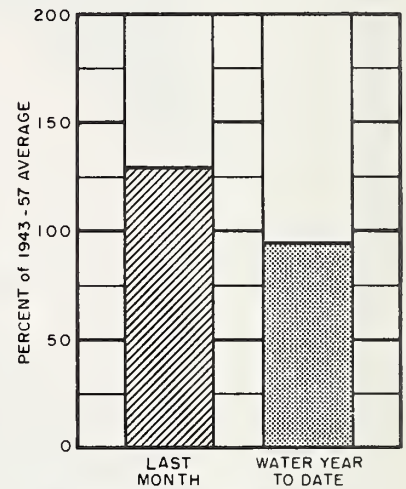
John Day at Service Creek



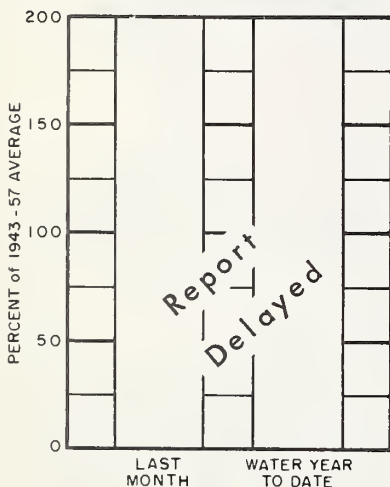
Deschutes at Moody



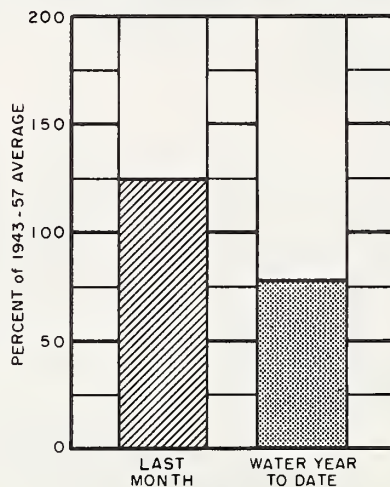
Hood and conduit near Hood River



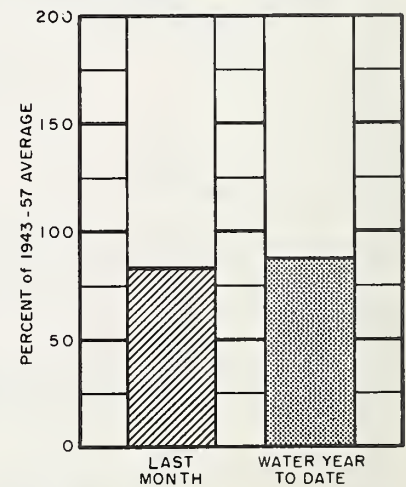
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow

Data furnished by U.S. Geological Survey; The California Oregon Power Co.; and North and South Boards of Control Owyhee Project.

VALLEY PRECIPITATION in OREGON ^a

APRIL 1, 1961



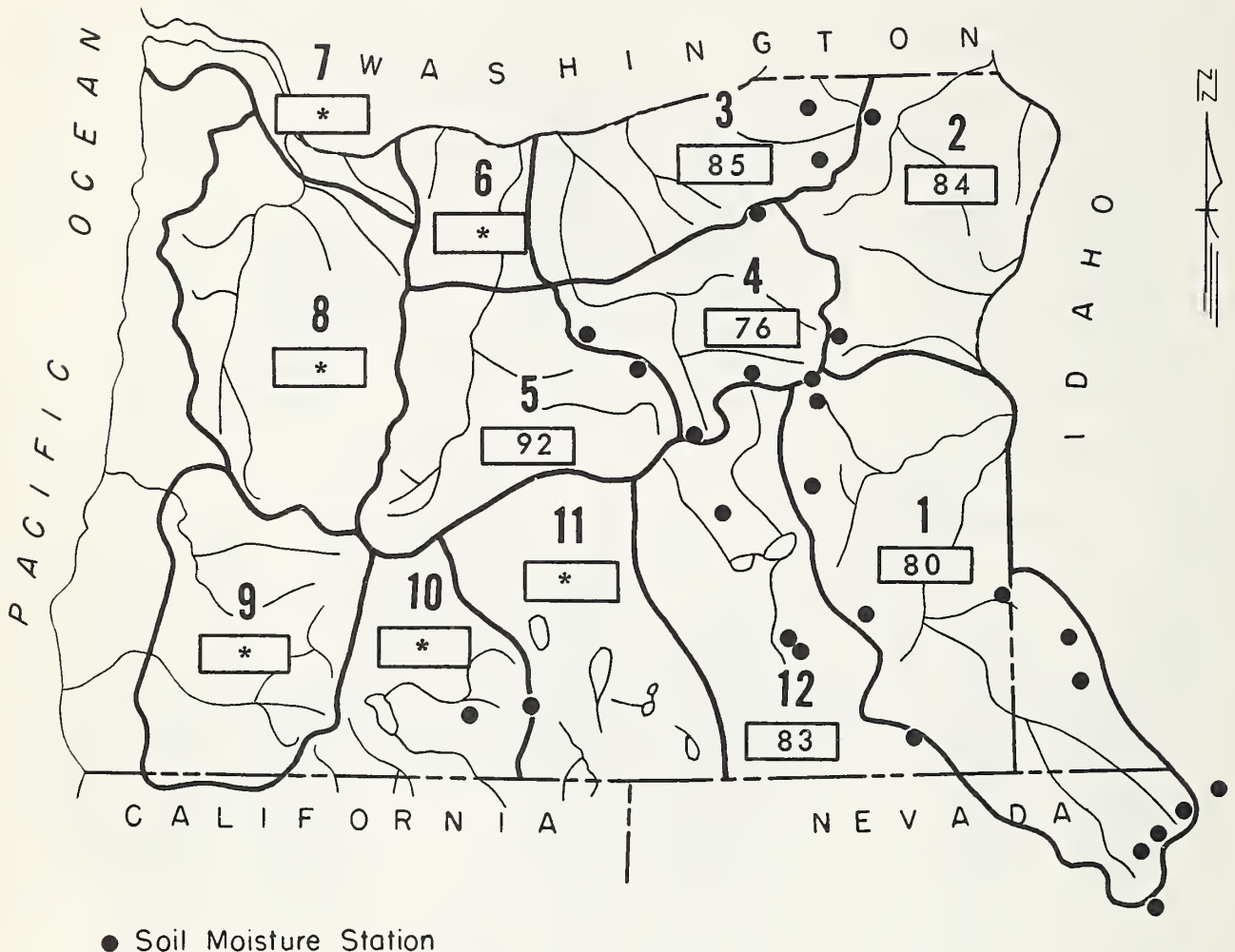
PRECIPITATION as PERCENT of the 1943 - 57 AVERAGE

STATION	LAST MONTH	WATER YEAR TO DATE ^b	STATION	LAST MONTH	WATER YEAR TO DATE ^b
BAKER KBKR	94	104	LAKEVIEW	90	80
BEND	126	90	MEDFORD APT.	179	86
BURNS	175	87	NYSSA	137	95
ENTERPRISE	134	82	PENDLETON APT.	196	108
EUGENE APT.	167	121	PORTLAND APT.	145	109
HEPPNER	Report delayed		ROSEBURG APT.	163	104
JOHN DAY	82	87	SALEM APT.	173	113
KLAMATH FALLS APT.	131	88	THE DALLES	130	111

(a) Preliminary data furnished by the U.S. Weather Bureau. (b) Oct. 1 to date. (c) Report delayed.

MOUNTAIN SOIL MOISTURE in OREGON as percent of available capacity

APRIL 1, 1961



Errata: February percentage in Area 3 should have read 81.

WATER SUPPLY OUTLOOK OWYHEE, MALHEUR WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - A cool, wet March brought heavy increases in the snowpack in the highest mountain areas but failed to bring any more than a slight improvement in the "fair" to "poor" outlook for irrigation water supplies in Malheur County. The increase in stored water supplies in reservoirs was good but not enough to brighten the outlook satisfactorily in any area.

SNOW COVER - Water content of the mountain snowpack increased satisfactorily in the higher watersheds but the low elevation snowpack, which counts so heavily in the annual runoff, has been missing since the early winter thaw and has not been replaced by any significant amounts. Snow on the Owyhee is 82 percent of the 15 year average (1943-57) and 103 percent of last year at this date. The snow on the Malheur River watershed is 74 percent of average and 87 percent of last year.

SOIL MOISTURE - Moisture in the soil mantle (top 4 feet) under the snowpack in Malheur County has improved and is now 80 percent of capacity. Only a very small amount of snow-melt water will be required to "prime" the watersheds for runoff.

RESERVOIR STORAGE - Total stored water is much less than last year at this date and is far below average. The March runoff, usually heavy, was below average this year.

Agency Valley and Warmsprings together have a total of 85,300 acre feet compared with 129,400 last year and 61,400 acre feet in the "short" year of 1955.

The Owyhee reservoir had 321,800 acre feet compared with 458,500 a.f. a year ago. In 1955 the Owyhee had only 209,200 acre feet in storage.

STREAMFLOW - Forecasts of the flow of Owyhee River indicate 140,000 acre feet inflow (33 percent of average) to the reservoir in the six months April through September. In the first 4 months (April-July) 125,000 acre feet should be received.

Flow of the Malheur River near Drewsey is forecast at 57 percent average, which should bring 46,000 acre feet into Warmsprings reservoir if received. Flow of the North Fork of Malheur is expected to be 42,000 a.f. in the same six months (April-September) or 66 percent of average.

Water supplies in Jordan Valley will be very short this year but not as critical as in 1959.

Many Malheur County water users raised near record crops of beets in 1955 by careful use of water, when the water outlook was worse than this year. It can be done again.

Report prepared by
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WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Boulder Creek	Fair	Poor
Bully Creek	Fair	Poor
Cow Creek	Fair	Poor
Jordan Creek	Fair	Poor
Jordan Valley Irrig. Dist.	Fair	Poor
McDermitt Creek	Fair	Poor
Oregon Canyon Creek	Fair	Poor
Owyhee Project	Fair	Fair
Sucker Creek	Fair	Poor
Ten Mile Creek	Fair	Poor
Vale Oregon Irrig. Dist.	Fair	Fair
Warm Springs Irrig. Dist.	Fair	Fair
Willow Creek	Fair	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Agency Valley	60.0	34.3	39.5	45.4
Antelope	55.0	f	22.4	18.3
Owyhee	715.0	321.8	458.5	539.0
Warm Springs	191.0	51.0	89.9	110.7

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

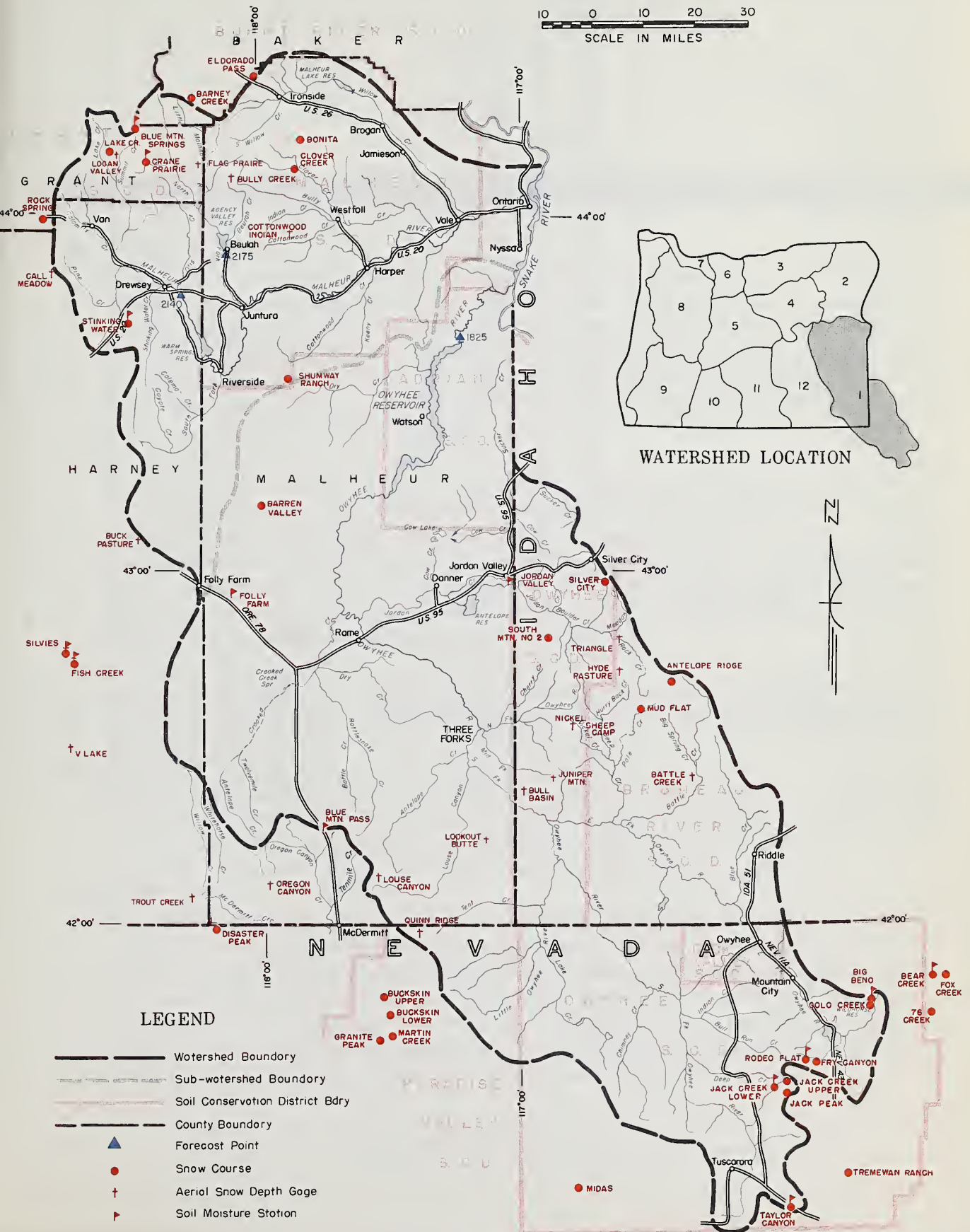
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
2140	Malheur near Drewsey	46	April-Sept.	81	57
		45	April-July	80	56
2175	Malheur, North Fork at Beulah ^d	42	April-Sept.	64	66
1825	Owyhee Reservoir net Inflow ^g	140	April-Sept.	430	33
		125	April-July	412	30

AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Bear Creek (Nev.)	7800	48	5.6	2-28-61	3.6	- -	- -
Big Bend (Nev.)	6700	48	9.6	3-28-61	7.9	9.2 ⁱ	8.9
Blue Mountain Springs	5900	42	12.0	3-27-61	8.1	8.4 ⁱ	9.9 ⁱ
Folly Farm	4450	36	8.3	2-15-61	6.2	6.7 ⁱ	- -
Jack Creek, Lower (Nev.)	6800	48	4.9	3-29-61	4.8	4.1 ⁱ	3.7
Jordan Valley	4250	48	9.8	2-15-61	5.9	5.8	- -
Rodeo Flat (Nev.)	6800	42	6.0	3-28-61	6.0	6.0 ⁱ	6.0
Stinking Water Summit	4800	48	11.7	2-15-61	11.2	10.3 ⁱ	- -
Taylor Canyon (Nev.)	6200	48	9.7	3-29-61	8.1	6.5 ⁱ	7.0

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) USBR records of inflow. (h) Not surveyed. (i) Nearest current data.

OWYHEE, MALHEUR WATERSHEDS



Owyhee, Malheur Watersheds SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Antelope Ridge	5900	3/28	8	2.4	3.0	--	0
Barney Creek	5950	3/23	19	6.5	7.5	8.7	13
Battle Creek ^e	5700	3/27	10	3.1	0.0	--	0
Bear Creek	7800	3/26	56	14.9	19.4	21.3	13
Big Bend	6700	3/28	26	7.3	7.6	10.5	15
Blue Mountain Spring	5900	3/27	49	13.7	12.5	16.9	15
Buckskin, Lower	6700	3/27	25	8.2	6.0	8.0	14
Buckskin, Upper	7200	3/27	35	11.6	9.9	9.0	14
Bull Basin ^e	5600	3/27	2	0.6	0.0	--	0
Bully Creek ^e	5300	3/27	0.5	T	T	--	0
Call Meadows ^e	5340	3/27	8	2.2	5.0	--	0
Clover Creek	4100	h					
Cottonwood-Indian ^e	4320	3/27	T	T	0.0	--	0
Crane Prairie	5375	3/27	26	7.4	6.8	9.8	15
Disaster Peak	6500	3/26	31	10.3	7.9	12.8	9
Eldorado Pass	4600	3/31	0	0.0	0.0	--	3
Fish Creek	7900	3/28	70	25.9	18.1	27.5	14
Flag Prairie ^e	4750	3/27	1	0.3	--	--	0
Fox Creek	6800	3/28	19	6.5	8.3	8.3	13
Fry Canyon	6700	3/28	19	6.5	6.3	9.2	15
Gold Creek	6600	3/28	13	3.4	4.8	6.0	15
Granite Peak	7800	3/27	32	8.4	10.8	11.3	14
Hyde Pasture ^e	5800	3/27	11	3.4	0.8	--	0
Jack Creek, Lower	6800	3/29	12	3.7	4.5	2.5	15
Jack Creek, Upper	7250	3/29	31	9.3	11.4	10.9	15
Jack Peak	8420	3/29	83	25.5	23.5	--	1
Juniper Mountain ^e (Red Canyon)	6500	3/27	19	5.9	--	--	0
Lake Creek	5120	3/27	30	8.7	8.7	11.2	15
Logan Valley	5100	3/27	20	5.0	8.0	--	0
Lookout Butte ^e	5650	3/27	1	0.3	--	--	0
Louse Canyon ^e	6440	3/27	10	3.3	1.3	--	0
Martin Creek	6700	3/27	19	6.1	8.6	7.4	14
Midas	7200	3/29	2	0.8	0.6	1.7	13
Mud Flat	5500	3/28	15	4.6	0.0	--	0
Oregon Canyon ^e	6950	3/27	20	6.6	5.2	--	0
Quinn Ridge ^e	6300	3/27	1	0.3	0.0	--	0
Riddle Creek ^e (Buck Pasture)	5700	3/27	5	1.8	4.4	--	0
Rock Spring	5100	3/28	10	2.5	4.3	4.9	15
Rodeo Flat	6800	3/28	16	4.7	6.5	8.7	15
Silver City	6400	4/1	32	13.1	13.5	18.2	10
Silvies	6900	3/28	36	12.6	14.0	14.2	13
South Mountain No. 2	6340	3/28	38	12.0	8.7	11.8	14
Stinking Water	4800	3/21	0	0.0	0.0	0.7	13
Taylor Canyon	6200	3/29	T	T	4.7	3.5	15
Tremewan Ranch	5700	3/29	T	T	0.0	0.8	15
Triangle ^e	5150	3/27	5	1.6	0.0	--	0
Trout Creek ^e	7800	3/27	20	6.6	10.3	--	0
76 Creek	7100	3/27	35	9.2	11.0	12.0	9
"V" Lake ^e	6600	3/28	25	8.8	4.8	--	0

WATER SUPPLY OUTLOOK BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE. OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1961 irrigation water supply outlook for the April-September period in north-eastern Oregon has improved on the Burnt, Powder, Grande Ronde and Catherine Creek and is now "fair" to "near average" for these streams. Forecasts of streams running north off the Wallawas decreased slightly during March and the outlook for them is now "fair" for the irrigation season. Above normal increases in snow cover occurred at all of the higher elevations except in the Aneroid Lake area. Reservoir storage is near or above normal.

SNOW COVER

Snow cover in northeastern Oregon received an above normal increase in March at all but a few snow courses and now averages 81% of the 1943-57 period. Heavy storms apparently missed the Aneroid Lake area, causing Aneroid Lake No. 1 snow measurements to show less than the expected increases for March. Most high elevation courses show very good gains during March and although the snow line is higher this year, an average of all snow measurements in the area shows about one-third more water in the snowpack than last year at this time.

SOIL MOISTURE

Soil moisture has been improved during March by above normal precipitation over most of the area and now stands at 84 percent of capacity for the top 3 to 4 feet of soil profile.

RESERVOIR STORAGE

Reservoir storage has increased nicely during March at Unity reservoir. It now holds 18,800 acre feet or 138 percent of its 1943-57 average for April 1st. Wallowa Lake has had very little inflow and now holds only 15,900 acre feet or 99 percent of average and only a little better than half what it held last year at this time.

STREAMFLOW

Streamflow forecasts vary for the April-September period from 96 percent of the 1943-57 average on Catherine Creek to 77 percent on the Grande Ronde. Forecasts increased 7 to 10 percent on the Burnt, Powder, Catherine and Grande Ronde. Forecasts for tributaries of the Wallowa and the Imnaha decreased 4 to 8 percent as a result of less than average March increases in snow water at the Aneroid Lake snow course. Flow of smaller streams heading at low elevations are still expected to fall off earlier than usual due to the lack of low elevation snow this year.

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WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",
"Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Alder Slope	Fair	Fair
Baker Valley	Fair	Fair
Big Creek	Fair	Poor
Clover Cr. (nr. No. Powder)	Fair	Fair
Cove	Fair	Fair
Durkee	Fair	Poor
Eagle Valley	Fair	Fair
Elgin	Fair	Poor
Enterprise - Joseph	Average	Fair
Hereford - Bridgeport	Average	Fair
Imnaha River	Average	Fair
LaGrande - Island City	Fair	Poor
Lostine - Wallowa	Average	Fair
No. Powder River-Wolf Cr.	Fair	Fair
Pine Valley	Fair	Fair
Powder River - Elk Creek	Fair	Poor
Summerville	Fair	Poor
Sumpter Valley	Fair	Fair
Union - Hot Lake	Average	Fair
Unity	Fair	Fair

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Unity	25.2	18.8	17.8	13.6
Wallowa Lake	37.5	15.9	31.0	16.1

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

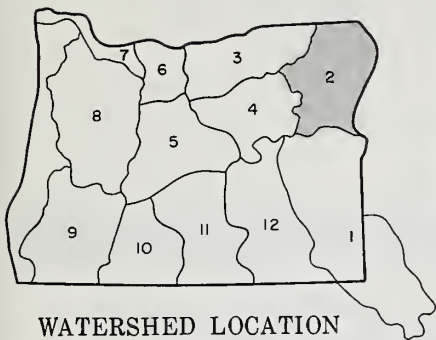
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE ^b
NO.	NAME				
3305	Bear near Wallowa	60	April-Sept.	74	81
2730	Burnt near Hereford ^d	36	April-Sept.	45	80
		34	April-June	41	83
3200	Catherine near Union	70	April-Sept.	73	96
3190	Grande Ronde at LaGrande	155	April-Sept.	202	77
3295	Hurricane near Joseph	40	April-Sept.	49	82
2920	Imnaha at Imnaha	250	April-Sept.	314	80
3300	Lostine near Lostine	110	April-Sept.	133	83
2755	Powder near Baker	55	April-Sept.	66	83
		53	April-July	65	82
3250	Wallowa, East Fork near Joseph ^d	9.8	April-Sept.	12.1	81
		8.0	April-July	9.7	82

AVAILABLE SOIL MOISTURE

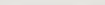







STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Blue Mountain Summit	5100	36	10.4	3-28-61	5.3	3.8	6.2 ⁱ
Emigrant Springs	3925	48	15.0	3-28-61	14.6	- -	- -
Tollgate	5070	48	17.8	3-28-61	16.3	16.4 ⁱ	- -

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated. (h) Not surveyed. (i) Nearest current data.

BURNT, POWDER, PINE, GRANDE RONDE,
IMNAHA WATERSHEDS



LEGEND

-  Watershed Boundary
-  Sub-watershed Boundary
-  Soil Conservation District Bdry.
-  County Boundary
-  Forecast Point
-  Snow Course
-  Soil Moisture Station
-  Aerial Snow Depth Gage

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Aneroid Lake No. 1	7480	3/26	90	32.0	20.5	39.4	15
Aneroid Lake No. 2	7000	3/26	80	28.4	15.9	30.4	15
Anthony Lake	7125	3/27	79	27.2	18.3	30.5	15
Bald Mountain ^e (Oregon)	6700	4/1	83	29.9	18.8	- -	0
Barney Creek	5950	3/23	19	6.5	7.5	8.7	13
Beaver Reservoir	5340	3/29	32	11.5	7.0	13.0	15
Blue Mountain Summit	5098	3/28	20	6.9	5.1	8.9	15
Bourne	5800	3/29	46	14.8	13.4	17.7	15
County Line	4800	3/31	5	2.0	2.4	7.4	7
Dooley Mountain	5430	3/23	18	5.5	7.3	9.2	15
Eilertson Meadows	5400	3/26	29	9.7	7.5	12.2	15
Eldorado Pass	4600	3/31	0	0.0	0.0	- -	3
Gold Center	5340	3/29	32	11.1	9.4	13.3	15
Goodrich Lake	6775	f					
Little Alps	6200	3/27	45	13.0	10.0	- -	0
Lucky Strike	5050	3/27	37	11.8	11.6	14.7	14
Meacham	4300	3/28	7	2.1	4.6	10.4	15
Moss Spring	5850	3/28	67	23.0	19.3	26.2	15
Schneider Meadows	5400	3/25	91	32.2	24.7	31.2	15
Schoolmarm	4775	3/31	0.3	0.1	1.0	5.7	8
Standley ^e	7400	3/31	92	33.1	- -	- -	0
Taylor Green	5740	3/30	40	13.0	12.4	18.0	15
Tipton	5100	3/24	28	9.0	8.8	10.7	13
Tollgate	5070	3/28	65	26.9	17.8	30.5	15

WATER SUPPLY OUTLOOK UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1961 irrigation water supply outlook for Umatilla, Morrow and Gilliam Counties has improved very slightly with double normal March precipitation but remains "fair" to "poor" for most lands served from natural streamflow. The outlook for storage water has improved about as expected. Indications are that flow of the North and South Forks of the Walla Walla River will be better, percentage-wise, than any other streams in the area, although still only 80 percent of the 1943-57 average.

SNOW COVER

Water content of the mountain snowpack is now 66 percent of the April 1st average but 115 percent of last year at this date. There is no low elevation snow. Snowpack increased very well above 5000 feet during March storms.

SOIL MOISTURE

The soil mantle (top 4 feet) of the upper watershed area is well wet under the snow and will require very little "priming" by early snow-melt water to favor a good runoff this spring.

RESERVOIR STORAGE

Cold Springs reservoir has been full for nearly one month with 50,000 acre feet held for later use. McKay reservoir storage increased nicely during March and now totals 53,660 acre feet.

STREAMFLOW

Forecasts of streamflow for the April-September irrigation season vary from 48 percent of the 15 year average (1943-57) for McKay Creek to 80 percent average on the South Fork of Walla Walla River. Flow of the Umatilla River at Pendleton is expected to be 59 percent of average during these 6 months of irrigation.

Natural flow of the Umatilla is expected to taper off much earlier than usual this summer unless unusually heavy rains occur in April and May. Flow will probably be very similar to 1954 when the main river fell below 500 c.f.s. the last of April.

Likewise, flow of McKay Creek will taper off rapidly after April 30 and will be similar to 1954 unless heavy rains are received.

Flow of Birch, Butter, Willow, Rhea and Rock Creeks will be very short, even less than in 1959.

Report prepared by
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209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"
"Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Birch Creek	Fair	Poor
Butter Creek	Fair	Poor
Dry Creek	Fair	Poor
Dugger Creek	Fair	Poor
Johnson Creek	Fair	Poor
McKay Creek	Fair	Poor
Mill Creek	Fair	Fair
Mud Creek	Fair	Poor
Pine Creek	Fair	Poor
Rhea Creek	Fair	Poor
Rock Creek	Fair	Poor
Umatilla River (Cold Springs Res.)	Fair	Fair
Umatilla River, Main	Fair	Poor
Umatilla River (McKay Res.)	Fair	Fair
Walla Walla River, Little	Fair	Fair
Walla Walla River, Main	Fair	Fair
Walla Walla River, N. Fork	Fair	Fair
Walla Walla River, S. Fork	Fair	Fair
Willow Creek	Fair	Poor

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cold Springs	50.0	50.0	50.0	47.5
McKay	73.8	53.7	43.1	56.8

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
0225	McKay near Pilot Rock	15	April-Sept.	31	48
		15	April-July	31	48
0200	Umatilla near Gibbon	57	April-Sept.	96	59
0210	Umatilla at Pendleton	110	April-Sept.	187	59
		109	April-July	182	60
0100	Walla Walla, South Fork near Milton	61	April-Sept.	76	80
		50	April-July	62	81

AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
	NAME						
	ELEVATION						
Athena-Weston	1700	48	11.8	3-28-61	6.6	6.9 ^g	--
Battle Mountain Summit	4340	48	8.0	3-28-61	7.3	4.7 ^g	--
Emigrant Springs	3925	48	15.0	3-28-61	14.6	--	--
Tollgate	5070	48	17.8	3-28-61	16.3	16.4 ^g	--
Errata:							
Athena-Weston in March Report				2-24-61	7.0		

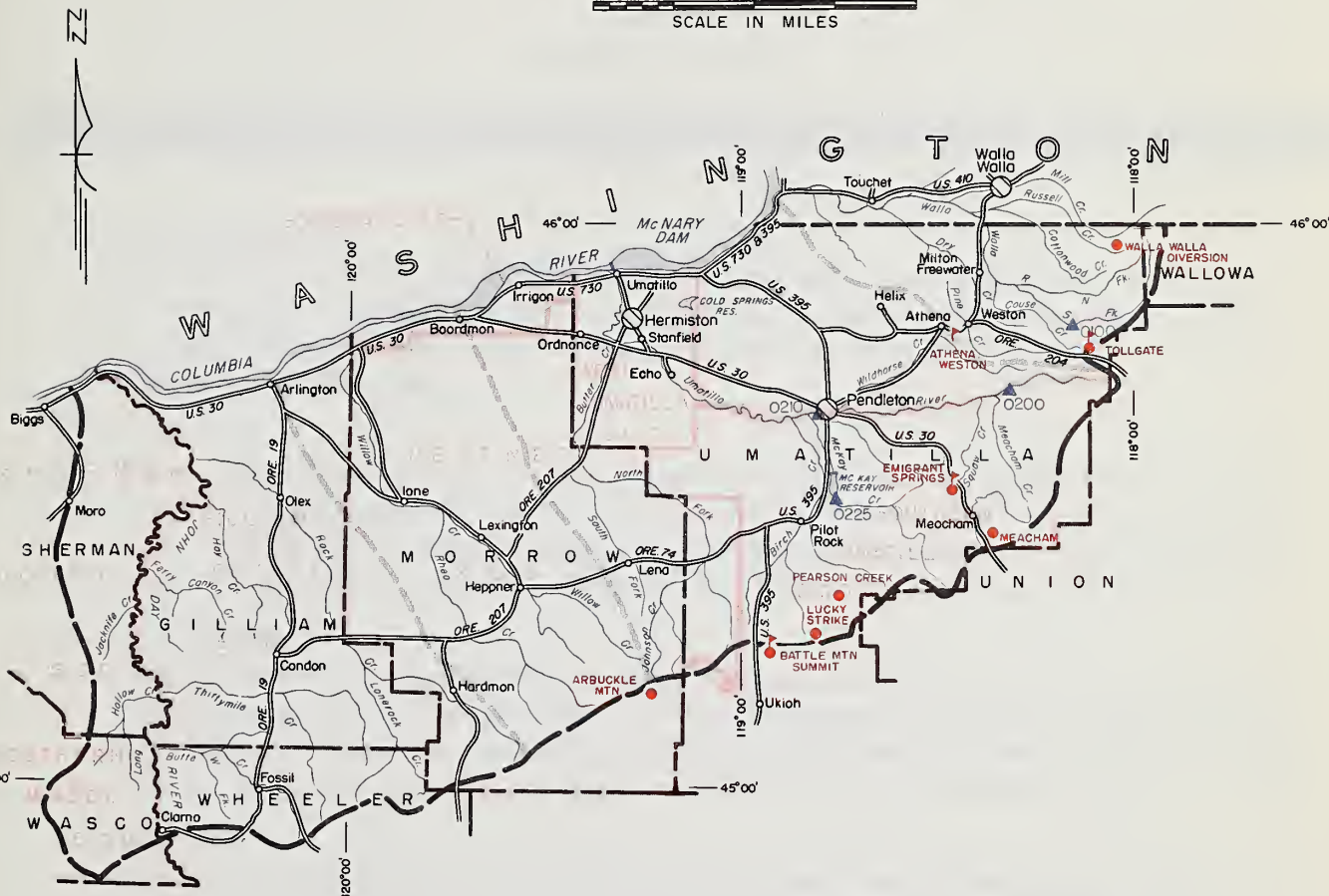
SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Arbuckle Mountain	5400	3/30	22	7.8	7.8	12.1	15
Battle Mountain Summit	4340	3/28	0	0.0	0.4	--	0
Emigrant Springs	3925	3/28	2	0.6	0.5	6.5	15
Lucky Strike	5050	3/27	37	11.8	11.6	14.7	14
Meacham	4300	3/28	7	2.1	4.6	10.4	15
Tollgate	5070	3/28	65	26.9	17.8	30.5	15

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Nearest current data.

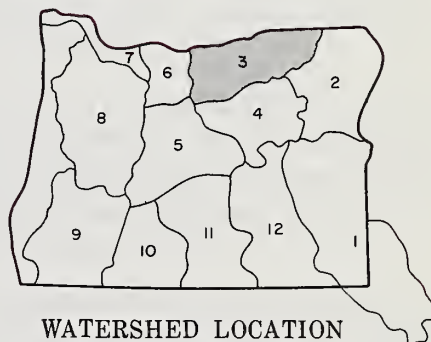
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

10 0 10 20 30
SCALE IN MILES



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▶ Soil Moisture Station



RE

WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1961 water supply outlook for the John Day Basin has improved nicely during March and is now "fair" for the irrigation season, April through September. Above normal March increases in the snowpack resulted in increases of 9 to 12 percent in streamflow for this area.

SNOW COVER

March storms added greatly to the snowpack at elevations above 5000 feet but added little if any moisture in form of snow below this elevation. The higher snow courses range from 80 to 94 percent of average. The average of all snow courses in the area is now 76 percent of the 1943-57 period and 116 percent of last year at this time.

SOIL MOISTURE

Soil moisture stations scattered over the area indicate better soil moisture conditions than last year at this time although still only 76 percent of capacity. These stations show good moisture increases during the last month in the top 4 feet of the soil mantle. This should put the watershed in good condition for spring snow-melt runoff.

STREAMFLOW

Flow of the John Day at Service Creek* during March was 80 percent of average, reflecting slightly less than normal rainfall at valley stations. Since October 1st streamflow at this station has averaged 76 percent of normal.

Streamflow forecasts have increased 9 to 12 percent as a result of good increases in the snowpack during March. Strawberry Creek is expected to flow 7,300 acre feet for the April-September irrigation season. The forecast for the John Day at Prairie City is 43,000 acre feet or 80 percent of average and the John Day at Ritter is 103,000 acre feet or 76 percent of average for this same period.

Smaller streams in the area which head in low elevations have not improved much due to the lack of low elevation snow cover. The flow of those heading at higher elevations should extend a little farther into the summer season although they are still expected to be shorter than usual.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

Report prepared by
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209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

expressed as "Poor", "Fair"
"Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Beech Creek	Fair	Poor
Beech Creek-Fox-Long Cr.	Fair	Poor
Bridge-Mountain Creeks	Fair	Poor
Camas Creek	Fair	Fair
Cherry Creek	Fair	Poor
Indian-Pine Creeks	Fair	Fair
John Day River, Main Fork	Fair	Fair
John Day River, Mid. Fork	Fair	Poor
John Day River, N. Fork	Fair	Poor
John Day River, S. Fork	Fair	Poor
Monument-Kimberly	Fair	Poor
Strawberry Creek	Fair	Fair

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943 - 57 AVERAGE

STREAMFLOW FORECASTS^a (1,000 Ac. Ft.)

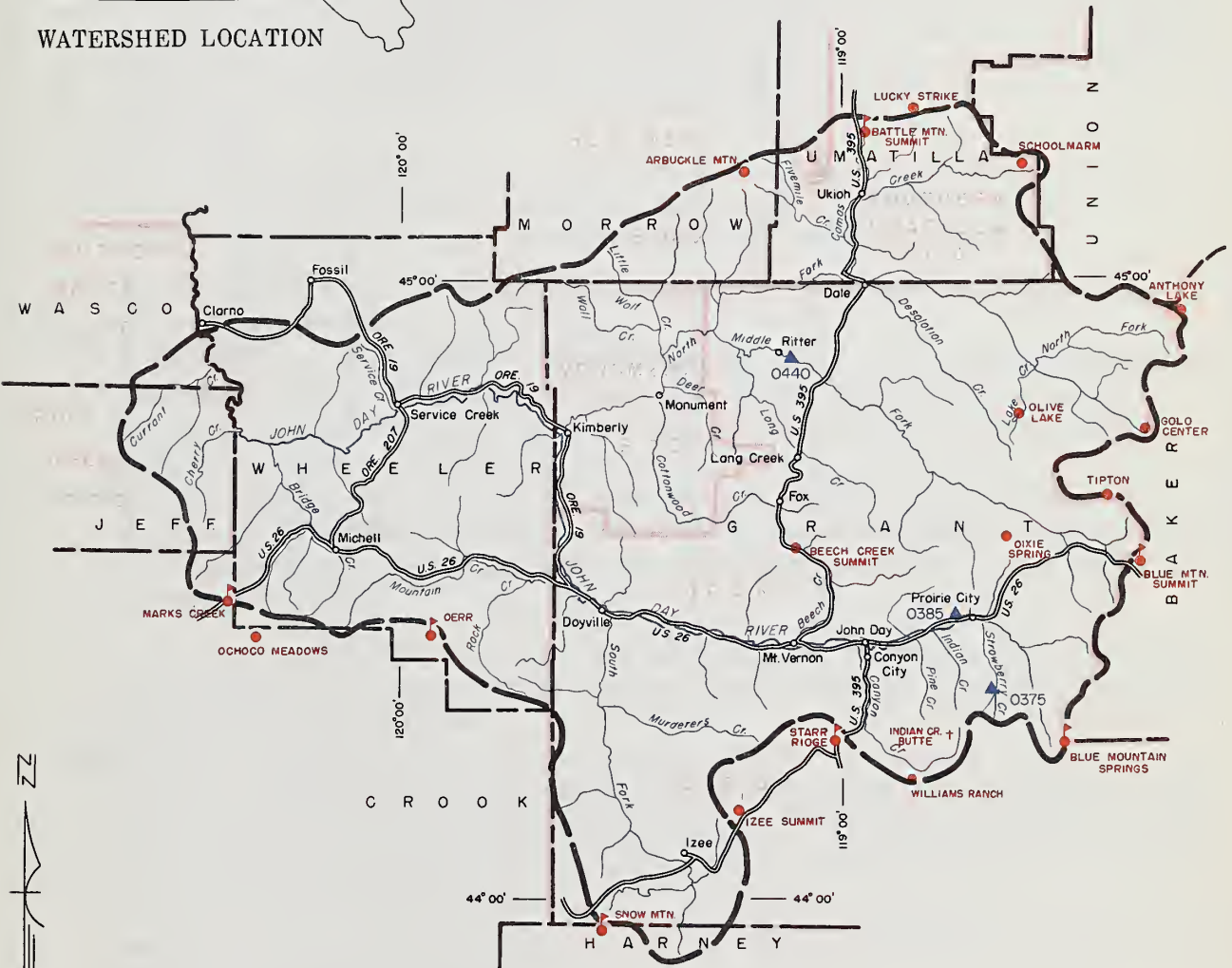
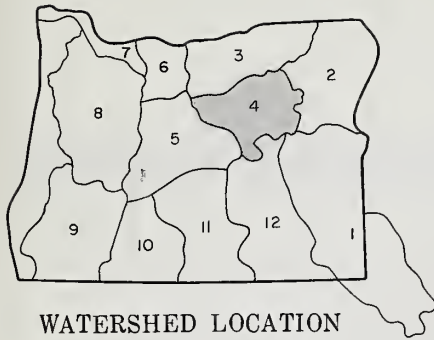
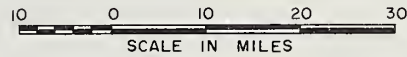
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
NO.	NAME				
0385	John Day at Prairie City	43	April-Sept.	54	80
		39	April-July	49	80
0440	John Day, Mid. Fork at Ritter	103	April-Sept.	135	76
		100	April-July	131	76
0375	Strawberry near Prairie City	7.3	April-Sept.	9.1	80

AVAILABLE SOIL MOISTURE

AVAILABLE SOIL MOISTURE		PROFILE (Inches)		SOIL MOISTURE (inches)			
STATION		DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Battle Mountain Summit	4340	48	8.0	3-28-61	7.3	4.7 ^h	- -
Blue Mountain Springs	5900	42	12.0	3-27-61	8.1	8.4 ^h	9.9 ^h
Blue Mountain Summit	5100	36	10.4	3-28-61	5.3	3.8	6.2 ^h
Derr	5670	24	6.0	c			
Marks Creek	4540	36	8.3	3-29-61	7.8	7.6	7.6
Snow Mountain	6300	48	10.4	c			
Starr Ridge	5150	36	6.1	3-27-61	5.6	5.8 ^h	5.8 ^h

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Nearest current data.

UPPER JOHN DAY WATERSHEDS



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▲ Soil Moisture Station
- † Aerial Snow Depth Gage

Upper John Day Watersheds

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Anthony Lake	7125	3/27	79	27.2	18.3	30.5	15
Arbuckle Mountain	5400	3/30	22	7.8	7.8	12.1	15
Battle Mountain Summit	4340	3/28	0	0.0	0.4	- -	0
Beech Creek Summit	4800	3/27	0	0.0	0.0	5.2	15
Blue Mountain Spring	5900	3/27	49	13.7	12.5	16.9	15
Blue Mountain Summit	5098	3/28	20	6.9	5.1	8.9	15
Derr	5670	3/30	27	8.7	8.9	10.8	15
Dixie Springs	6650	3/29	68	23.3	16.0	24.7	15
Gold Center	5340	3/29	32	11.1	9.4	13.3	15
Indian Creek Butte ^e	6550	3/27	81	22.7	18.4	- -	0
Izee Summit	5293	3/28	23	6.1	6.1	8.6	15
Lucky Strike	5050	3/27	37	11.8	11.6	14.7	14
Marks Creek	4540	3/29	0.5	0.1	1.1	2.9	15
Ochoco Meadows	5200	3/31	20	7.2	9.1	11.0	15
Olive Lake	6000	3/29	52	17.7	14.6	22.3	15
Schoolmarm	4775	3/31	0.3	0.1	1.0	5.7	8
Snow Mountain	6300	3/30	40	12.9	10.0	14.6	14
Starr Ridge	5150	3/27	12	2.6	3.5	5.9	15
Tipton	5100	3/24	28	9.0	8.8	10.7	13
Williams Ranch	4500	g					

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK UPPER DESCHUTES, CROOKED WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - The 1961 irrigation water supply outlook for the central Oregon counties of Deschutes, Crook and Jefferson has improved noticeably as a result of heavy March storms but the situation still remains only "fair" for most lands (depending on natural streamflow). Reservoired water supplies have improved very well, especially for Ochoco reservoir, which increased from 10,800 a.f. to 20,800 a.f. during March.

SNOW COVER - Water content of the mountain snowpack on Crooked River watershed is just equal to that of last year on this date but is only 76 percent of the 15 year average (1943-57). Snow is almost entirely gone below 5000 feet elevation.

On the Deschutes River watershed the snowpack is 114 percent of last year's pack at this date and 74 percent of the average.

SOIL MOISTURE - Moisture content of the soil mantle (top 4 feet) of both watersheds has continued to improve (94 percent of capacity) and is about the same as last year. Only a very limited amount of snow-melt water will be needed to "prime" the soil mantle for a favorable spring runoff.

RESERVOIR STORAGE - Ochoco reservoir now contains 20,800 acre feet compared to 12,700 a.f. on hand one year ago. Prineville reservoir has about 65,930 acre feet in storage and will be able to furnish water to the Rye Grass Ditch on Ochoco Creek this summer.

Storage water held in Crane Prairie, Crescent Lake and Wickiup reservoirs is increasing normally but is somewhat below average except for Wickiup, which is about the same as last year at this date.

STREAMFLOW - Streamflow forecasts for the Deschutes River indicate a 78 percent average flow at Benham Falls during the April-September period. The Little Deschutes is expected to flow 74 percent of the 15 year average (1943-57) for the same six month period. Inflow to Crescent Lake should be about 71 percent average and to Crane Prairie reservoir about 70 percent.

Tumalo and Squaw Creeks are forecast at 85 and 91 percent average for the six months of the irrigation season.

Inflow to Ochoco reservoir is forecast at 13,000 acre feet or 42 percent of average for the April-September season. Flow of Crooked River for the same period is set at 58 percent of average. Trout and Hay Creeks in Jefferson County will have limited flows this year with less water available than last year.

Report prepared by
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209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Arnold Irrigation District	Average	Average
Bear Creek	Fair	Fair
Beaver Creek	Fair	Fair
Camp Creek	Fair	Fair
Central Ore. Irrig. Dist.	Average	Average
Crooked River	Fair	Fair
Deschutes River	Average	Fair
Hay-Trout Creeks	Fair	Fair
Lone Pine Irrig. Dist.	Average	Average
Mill Creek	Fair	Fair
North Unit Irrig. Dist.	Average	Fair
Ochoco Creek	Fair	Fair
Sisters Irrigation Dist.	Average	Fair
Snow Creek Irrig. Dist.	Average	Fair
Squaw Creek Irrig. Dist.	Average	Fair
Swalley Ditch	Average	Average
Tumalo Project	Average	Average
Walker Basin Irrig. Dist.	Average	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Crane Prairie	55.3	41.2	33.4	45.2
Crescent Lake	117.2	44.4	49.1	47.0
Ochoco	47.5	20.8	12.7	34.3
Prineville	153.0	65.9	- -	- -
Wickiup	182.0	181.7	183.2	141.3

Note: The U. S. Bureau of Reclamation indicates that dead storage in the amount of 5360 acre feet may be included in the current storage figure for Crescent Lake.

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
0535	Crane Prairie Reservoir total Inflow	100	April-Sept.	143	70
0600	Crescent at Crescent Lake ^d	22	April-Sept.	31	71
0795	Crooked near Post	75	April-Sept.	129	58
0645	Deschutes at Benham Falls ^d	470	April-Sept.	602	78
		319	April-July	404	79
0500	Deschutes below Snow Creek	50	April-Sept.	74	68
0630	Deschutes, Little near Lapine ^d	84	April-Sept.	113	74
		75	April-July	100	75
0848	Ochoco Reservoir net inflow	13	April-Sept.	32	42
0555	Odell near Crescent	26	April-Sept.	34	76
0750	Squaw near Sisters	50	April-Sept.	55	91
0730	Tumalo near Bend ^d	47	April-Sept.	55	85

AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Derr	5670	24	6.0	c			
Marks Creek	4540	36	8.3	3-29-61	7.8	7.6	7.6
Snow Mountain	6300	48	10.4	c			

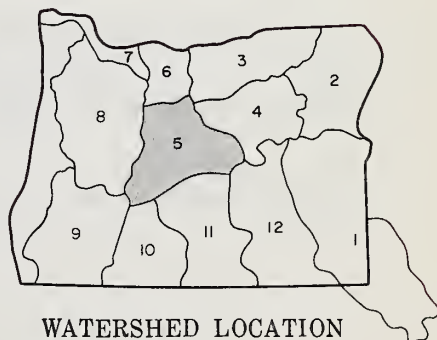
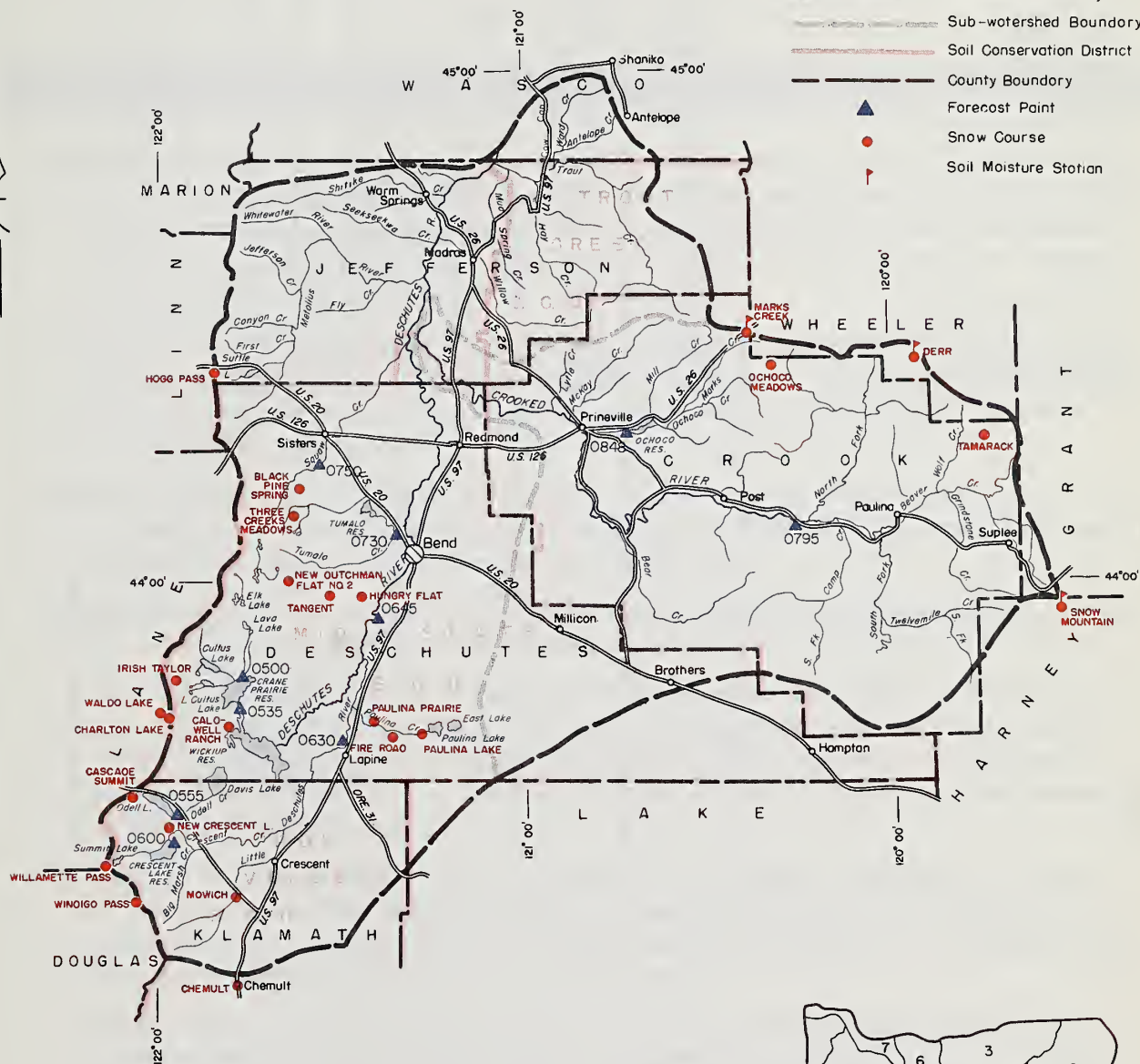
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated.

UPPER DESCHUTES, CROOKED WATERSHEDS

10 0 10 20 30
SCALE IN MILES

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- Forecast Point
- Snow Course
- Soil Moisture Station



Upper Deschutes, Crooked Watersheds

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ⁶
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Black Pine Spring	4600	3/29	0	0.0	0.3	4.7	5
Caldwell Ranch	4400	3/22	7	2.7	9.6	10.7	14
Cascade Summit	4880	3/30	65	24.6	25.5	36.7	15
Charlton Lake	5750	3/21	72	25.7	26.0	33.2	11
Chemult	4760	3/28	23	7.2	5.2	11.2	14
Derr	5670	3/30	27	9.5	8.9	10.8	15
Fire Road	5050	3/27	15	4.5	2.8	- -	3
Hogg Pass	4755	3/28	107	38.9	29.3	50.6	15
Hungry Flat	4400	3/28	0	0.0	0.0	6.5	6
Irish-Taylor	5500	3/22	89	33.9	32.7	48.4	8
Marks Creek	4540	3/29	0.5	0.1	1.1	2.9	15
Mowich	4700	3/22	0	0.0	3.3	- -	1
New Crescent Lake	4800	3/23	29	11.2	13.3	19.7	6
New Dutchman Flat No. 2	6400	3/28	144	53.8	38.4	57.5	12
Ochoco Meadows	5200	3/31	20	7.2	9.1	11.0	15
Paulina Lake	6330	3/27	69	22.8	12.3	- -	3
Paulina Prairie	4285	3/27	0	0.0	0.0	- -	3
Snow Mountain	6300	3/30	40	12.9	10.0	14.6	14
Tamarack	4800	c					
Tangent	5400	3/28	74	25.8	16.9	25.9	5
Three Creeks Butte	5200	3/29	11	3.9	5.8	- -	3
Three Creeks Meadows	5600	3/29	53	18.3	13.6	23.3	15
Waldo Lake	5500	3/21	64	23.3	22.7	34.6	14
Willamette Pass	5600	3/24	98	38.2	36.4	51.3	9
Windigo Pass	5800	3/23	105	40.6	34.8	53.0	10

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - Cool, wet storms in March brought an extremely heavy increase in snowpack at high and moderate elevations of Hood and Wasco Counties but a very limited increase at the lower elevations. Lack of low elevation snow will mean "short" water supplies for Hood River Irrigation District and for some small streams but the general outlook is "fair" to "near average".

SNOW COVER - Water content of the mountain snowpack now totals 70 percent of the 15 year average (1943-57) but 106 percent of last year. It is important to note that the low elevation snow, which contributes so heavily to stream runoff, is almost entirely missing this year.

RESERVOIR STORAGE - Clear Lake reservoir is reported to be holding 6,337 acre feet of water for later use by the Juniper Flat Irrigation District. No reports have been received from Rock Creek or Badger Lake reservoirs.

STREAMFLOW - Above average precipitation during March increased streamflow during the month but also effectively prevented any accumulation of low elevation snow.

Forecasts for Hood River near the mouth indicate an expected flow of 310,000 acre feet or 85 percent average during the April-September period. During the same period the West Fork at Dee should discharge 145,000 acre feet or 83 percent of average. These flows will be less than the 398,000 and 198,000 acre feet measured at these stations last year.

Snow in the Mt. Defiance area, as measured at Greenpoint reservoir, is the least of record since surveys began in 1948. The snow at this course contains only 5.8 inches of water compared with 19.8 inches last year on April 1st. This may create serious shortages for lands served from this source.

Flow of White River below Tygh Valley is forecast at 140,000 acre feet for the April-September period compared with a measured flow of 151,000 a.f. for this period last year. Flow of Rock, Gate, Threemile, Badger and Tygh Creeks will taper off earlier than last year.

Flow of Dog River, Mosier, Mill and the Mile Creeks will likewise be less than last year and will taper off earlier.

Report prepared by
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209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Aldridge Ditch	Fair	Fair
Badger Creek	Average	Fair
Dee Irrigation District	Average	Fair
East Fork Irrig. Dist.	Average	Fair
Farmers Irrig. Dist.	Average	Fair
Glacier Irrig. Dist.	Average	Fair
Hood River Irrig. Dist.	Fair	Poor
Juniper Flat	Average	Average
Middle Fork Irrig. Dist.	Average	Fair
Mile Creeks	Fair	Fair
Mill Creek	Fair	Fair
Mount Hood Irrig. Dist.	Average	Fair
Rock-Gate-Threemile Crs.	Average	Fair
Tygh Creek	Fair	Fair
White River	Average	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	--	6.3	--	--

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

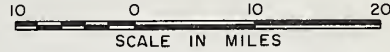
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
1210	Hood near Hood River ^d	310	April-Sept.	365	85
		260	April-July	311	84
1185	Hood, West Fork near Dee	145	April-Sept.	174	83
		125	April-July	151	83
1015	White below Tygh Valley	140	April-Sept.	178	79
		125	April-July	161	78

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Brooks Meadows	4300	3/30	16	6.1	6.9	15.0	15
Clear Lake	3500	3/30	13	4.5	6.7	16.1	15
Clear Lake Experimental	3500	3/30	25	8.8	13.2	--	0
Cooper Spur	3490	^c					
Greenpoint Reservoir	3400	3/29	16	5.8	19.8	23.6	7
Knebal Springs	3850	3/30	7	2.6	5.1	--	1
Parkdale	1770	^c					
Phlox Point	5600	3/29	156	68.3	42.7	70.7	15
Red Hill	4400	3/25	76	37.2	36.1	60.5	10
Still Creek	3700	3/29	48	19.6	21.3	30.1	15
Tilly Jane	6000	3/19	115	45.1	31.8	51.4	8
Ulrich Ranch Junction	3350	3/30	0	0.0	3.8	--	0
Upper Valley	2530	^c					

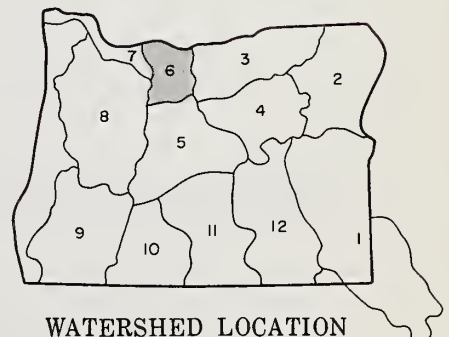
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated.

HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course



WATER SUPPLY OUTLOOK LOWER COLUMBIA WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The water supply outlook for spring and summer flow of the Columbia River near The Dalles again has increased slightly during the month of March. The river is now forecast to flow 97,200,000 acre feet during the April-September period, which is 92 percent of the 15 year normal (1943-57).

SNOW COVER

During March the snow cover on the Canadian portion of the Columbia River Basin increased in relation to normal at high elevations and decreased at the low elevations. In the southern portion of the basin in western Wyoming, southern Idaho, and in eastern Oregon, snowfall during March was spotted but close to normal. The snowpack here is still light.

SOIL MOISTURE

Watershed soils in the northern portion of Columbia Basin and Canada are well primed but in the remainder of the basin, watershed soils are still unusually dry. In the southern portion, the first foot to two feet of soil is partially primed, but below this level the soil is extremely dry and expected to reduce streamflow resulting from snow-melt this spring.

During March south slopes lost soil moisture heavily and the high snow line reduced soil moisture in this portion of the watershed.

STREAMFLOW

Flow of the Columbia River near The Dalles* has averaged 140.8 percent of normal during March.

Month	Percent of Normal Discharge (1943-57)			
October	103	Adjusted for storage		
November	107	"	"	"
December	82	"	"	"
January	78	"	"	"
February	152	"	"	"
March	141	"	"	"

*From preliminary data furnished by U.S. Geological Survey, Portland, Oregon

Report prepared by
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STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
1057	Columbia at The Dalles	97,200	April-Sept.	106,100	92
		65,500	April-June	72,000	91

HISTORICAL DATA (Columbia River at The Dalles)

YEAR	STREAMFLOW ^c (1,000 A.F.)			PEAK ^e (1,000 c.f.s.)	DATE
	APR. - SEPT.	APR. - JUNE	MAY - JUNE		
1943	115,000	75,300	52,400	541	June 21
1944	61,900	39,200	32,100	326	June 19
1945	81,600	54,600	47,300	505	June 8
1946	108,100	75,400	59,600	581	May 30
1947	100,300	70,000	56,800	536	May 11
1948	130,500	94,600	81,900	999	May 31
1949	95,700	71,400	56,000	622	May 18
1950	120,400	74,700	61,200	744	June 25
1951	113,000	75,600	59,100	597	May 26
1952	107,700	77,500	57,300	557	May 28
1953	100,600	64,900	55,800	609	June 17
1954	119,500	70,500	59,300	561	May 23
1955	99,500	58,300	50,300	545	June 26
1956	131,400	96,900	75,800	815	June 3
1957	105,700	80,500	67,200	700	May 22
1943-57 Avg.	106,100	72,000	58,100	616	
1958	97,700	72,000	58,600	593	May 31
1959	112,500	71,900	58,900	555	June 23

LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)^f

VANCOUVER ^g GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 c.f.s.)	DRAINAGE DISTRICT PUMPHOUSE						
		SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		RIVER MILES						
		118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	450	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Observed flow corrected for storage in F.D.R., Kootenai, Pend Oreille, Flathead, Hungry Horse, Lake Chelan, Coeur d'Alene and Grand Coulee Equalizer. (d) Not scheduled. (e) Observed peak. (f) Based on Corps of Engineers automatic water stage recorder data. (g) Vancouver Weather Bureau gage zero is 1.82' above M.S.L.. All other readings are in feet above M.S.L.

LOWER COLUMBIA WATERSHEDS

10 0 10 20 30
SCALE IN MILES



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- River Miles



"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK WILLAMETTE WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1961 spring and summer water supply outlook for Willamette Valley streams has increased to "fair" as a result of above normal increases in the high elevation snowpack during March. Above normal March precipitation caused heavy gains in reservoir storage.

SNOW COVER

Snow cover on high elevation Willamette watersheds received almost a 30 percent increase during March but still remains only 65 percent of the 1943-57 average for April 1st. The snowpack is 104 percent of last year at this time but almost all of the pack is located at higher elevations.

SOIL MOISTURE

Above normal precipitation coupled with warm temperatures has resulted in very good soil moisture on Willamette watersheds. Precipitation at valley stations shows about 112 percent of average this year since October 1.

RESERVOIR STORAGE

Reservoir storage in the five multi-purpose reservoirs operated by the Corps of Army Engineers is 84 percent of last year's storage at this time but is 119 percent of the 1943-57 average period.

STREAMFLOW

Flow of the Middle Fork of the Willamette River* during March was 127 percent of average, bringing the flow since October 1st up to 95 percent of average.

Streamflow forecasts in the Willamette Valley increased 5 to 17 percent during March as a result of above average increases in the snowpack at higher elevations. Forecasts now vary from 72 percent on the Clackamas above Three Lynx to 87 percent on the Middle Fork of the Willamette for the April-September period.

Flow of the Molalla, Pudding, Calapooya, Mohawk and other streams heading in watersheds of only moderate elevations will have much smaller flows than last year.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

Report prepared by
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209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Calapooya	Fair	Fair
Clackamas	Fair	Fair
McKenzie	Average	Fair
Molalla	Fair	Fair
Santiam, North	Average	Fair
Santiam, South	Average	Fair
Willamette, Coast Fork	Average	Fair
Willamette, Middle Fork	Average	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943 - 57 AVERAGE
Cottage Grove	30.0*	15.8	19.2	19.2
Detroit	299.9*	195.2	255.6	147.7
Dorena	70.5*	35.7	44.5	36.8
Fern Ridge	94.2*	72.4	73.4	63.5
Lookout Point	337.2*	201.0	224.1	- -

*Multiple purpose reservoir--space reserved primarily for flood runoff.

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943 - 57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE ^c
NO.	NAME				
2080	Clackamas at Big Bottom	137	April-Sept.	184	74
		110	April-July	150	73
2100	Clackamas at Estacada	647	April-Sept.	879	74
		580	April-July	763	76
2095	Clackamas above Three Lynx	487	April-Sept.	674	72
		410	April-July	578	71
1590	McKenzie at McKenzie Bridge	545	April-Sept.	640	85
		413	April-July	488	85
1625	McKenzie near Vida	1142	April-Sept.	1362	84
		932	April-July	1120	83
2090	Oak Grove Fork above Power Intake	155	April-Sept.	198	78
		120	April-July	156	77
1545	Row near Dorena	93	April-Sept.	114	82
		88	April-July	109	81
1830	Santiam, North at Mehama ^d	777	April-Sept.	968	80
		686	April-July	866	79
1875	Santiam, South at Waterloo	500	April-Sept.	652	77
		465	April-July	616	75
1480	Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	790	April-Sept.	909	87
		700	April-July	804	87
1910	Willamette at Salem ^d	4535	April-Sept.	5461	83
		4025	April-July	4942	81

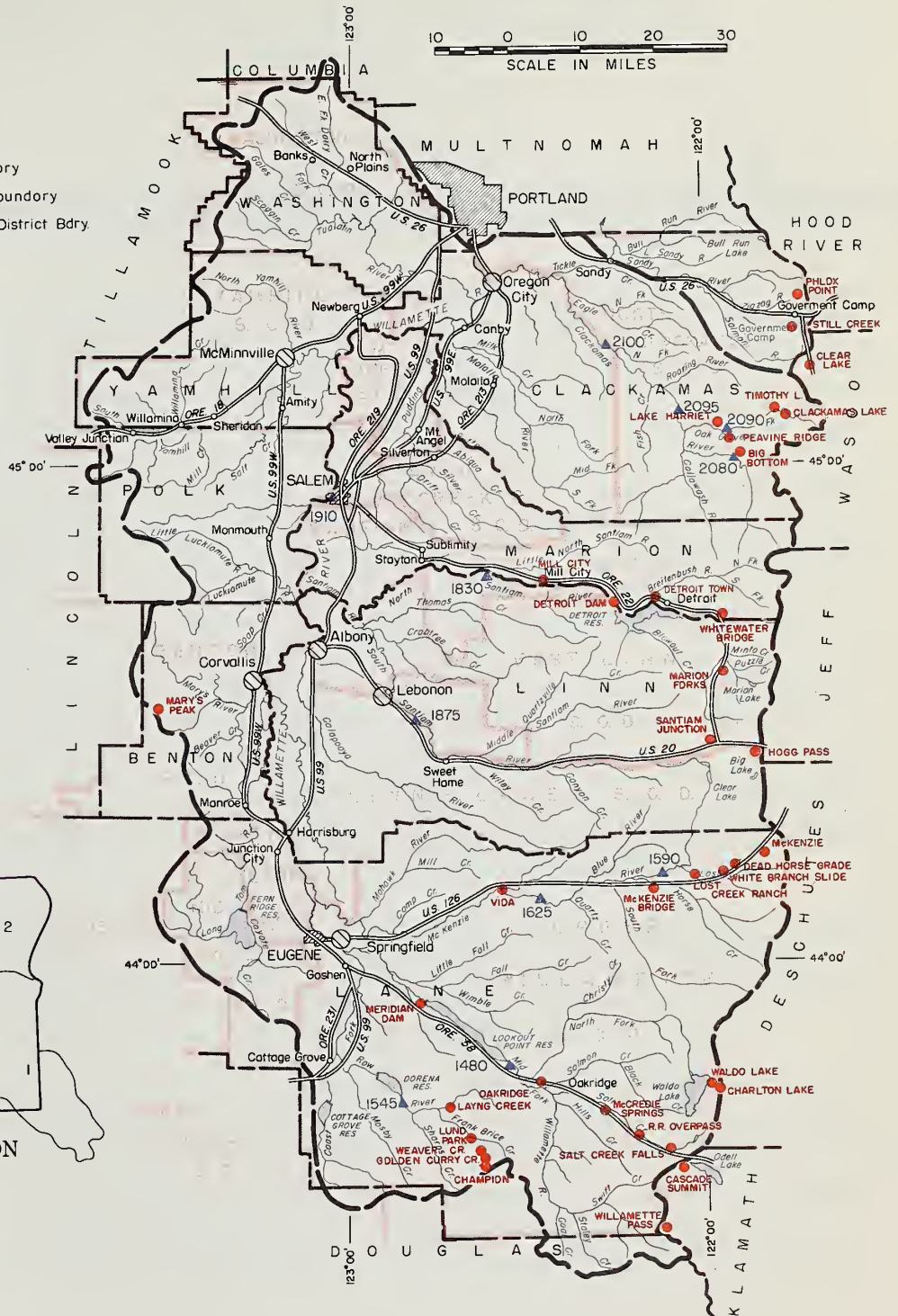
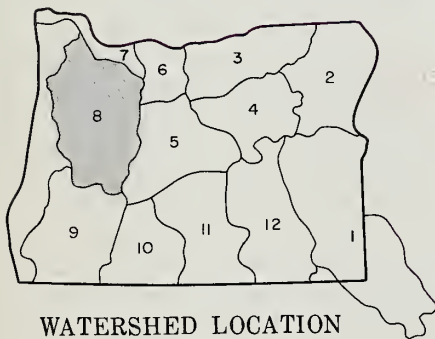
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

WILLAMETTE WATERSHEDS

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- Forecast Point
- Snow Course

10 0 10 20 30
SCALE IN MILES



Willamette Watersheds

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Big Bottom	2118	3/31	0	0.0	0.0	9.4	7
Cascade Summit	4880	3/30	65	24.6	25.5	36.7	15
Champion	4500	3/30	66	24.8	28.9	33.8	15
Charlton Lake	5750	3/21	72	25.7	26.0	33.2	11
Clackamas Lake	3400	3/28	22	8.1	10.1	19.5	12
Clear Lake	3500	3/30	13	4.5	6.7	16.1	15
Clear Lake Experimental	3500	3/30	25	8.8	13.2	- -	0
Dead Horse Grade	3800	3/28	38	11.8	16.1	27.5	8
Detroit Town	1610	3/28	0	0.0	0.0	T	7
Detroit Dam	1580	3/28	0	0.0	0.0	0.0	7
Golden Curry Creek	3136	3/30	17	5.2	T	8.7	8
Hogg Pass	4755	3/28	107	38.9	29.3	50.6	15
Lake Harriet	2045	3/31	0	0.0	0.0	0.2	7
Layng Creek	1200	3/30	0	0.0	0.0	0.0	8
Lost Creek Ranch	1956	3/28	0	0.0	0.0	1.7	6
Lund Park	1740	3/30	0	0.0	0.0	0.0	8
Marion Forks	2730	3/28	20	7.5	7.9	16.7	15
Marys Peak	3620	3/25	31	12.9	- -	14.9	11
McCredie Springs	2120	3/30	0	0.0	0.0	0.0	8
McKenzie	4800	3/28	109	40.6	36.0	52.3	14
McKenzie Bridge	1372	3/28	0	0.0	0.0	0.0	7
Meridian Dam	750	3/30	0	0.0	0.0	0.0	8
Mill City	826	3/28	0	0.0	0.0	0.0	8
Oakridge	1310	3/30	0	0.0	0.0	0.0	8
Peavine Ridge	3500	3/31	32	13.0	19.0	23.8	15
Phlox Point	5600	3/29	156	68.3	42.7	70.7	15
Railroad Overpass	2750	3/30	0	0.0	0.0	3.8	8
Salt Creek Falls	4000	3/30	24	8.7	16.2	23.9	8
Santiam Junction	3990	3/28	49	16.0	14.0	29.4	15
Still Creek	3700	3/29	48	19.6	21.3	30.1	15
Timothy Lake	3295	3/31	28	11.2	15.3	- -	2
Vida	800	3/28	0	0.0	0.0	0.0	7
Waldo Lake	5500	3/21	64	23.3	22.7	34.6	14
Weaver Creek	2440	3/30	0	0.0	0.0	3.1	7
White Branch Slide	2800	3/28	10	2.6	T	7.6	8
Whitewater Bridge	2175	3/28	0	0.0	0.0	7.2	8
Willamette Pass	5600	3/24	98	38.2	36.4	51.3	9

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK ROGUE, UMPQUA WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - Cool, wet March storms have greatly improved the 1961 irrigation water supply outlook in southern Oregon by bringing unusually heavy increases in the mountain snowpack which is now 20 to 30 percent greater than last year but still below average. Stored water supplies are still "short" in Fourmile, Fish Lake and Hyatt reservoirs, but excellent storage in Emigrant and Howard Prairie reservoirs will partially offset this shortage.

SNOW COVER - Water content of the mountain snowpack on the Umpqua is 78 percent of the 15 year average (1943-57) and 120 percent of last year. On the main Rogue River, snow is 91 percent of average and 128 percent of last year. On the Applegate-Illinois watersheds, snow is 88 percent of average and 127 percent of last year.

SOIL MOISTURE - Moisture in the soil mantle (top 4 feet) of these watersheds is very satisfactory and will favor spring runoff from melting snow.

RESERVOIR STORAGE - Water stored in Howard Prairie, Emigrant Gap and Hyatt Lake reservoirs totals 48,900 acre feet compared with 21,900 acre feet last year at this date and is adequate for the needs of the Talent Irrigation District.

Storage in Fourmile and Fish Lake reservoirs is 8,200 acre feet compared with 9,300 acre feet last year. This is a "short" supply for the Medford and Rogue River Valley Irrigation Districts, but they can count on some water from the generous supply in the Talent system of reservoirs.

STREAMFLOW - All forecasts in this area have increased from 10 to 22 percent as a result of heavy increases in mountain snowpack. Forecasts of streamflow for the irrigation season (April-September) indicate discharge of the North Umpqua near Toketee Falls will be 80 percent of the 15 year average (1943-57).

Flow of Rogue River at Raygold will be 83 percent average and minimum low flow is not expected to drop below 1030 c.f.s. if summer rainfall and temperatures are average. Canal alternation should not be necessary for the Grants Pass Irrigation District.

Discharge of the North and South Forks of Little Butte Creek are estimated at 72 and 67 percent average for the next six months. Inflow to Fourmile and Hyatt Lakes is estimated to be 6,000 acre feet and 3,000 acre feet, respectively, during the next six months.

The Applegate and Illinois Rivers are forecast to flow 91 and 82 percent of their average April through September.

Report prepared by
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209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"
"Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Althouse Creek	Fair	Fair
Applegate River, Big	Average	Fair
Applegate River, Little	Average	Fair
Ashland Creek	Fair	Fair
Butte Creek, Little	Fair	Fair
Butte Creek, Big	Fair	Fair
Cow Creek	Fair	Fair
Deer Creek	Fair	Fair
Elk Creek	Average	Fair
Emigrant Cr. (above Res.)	Fair	Fair
Evans Creek	Fair	Fair
Gold Hill Irrigation Dist.	Average	Average
Grants Pass Irrig. Dist.	Average	Average
Grave Creek	Fair	Fair
Illinois River, East Fork	Fair	Fair
Illinois River, West Fork	Fair	Fair
Jump-off-Joe Creek	Fair	Fair
Neil Creek	Fair	Fair
Red Blanket Creek	Average	Fair
Rogue River	Average	Fair
Sucker Creek	Fair	Fair
Table Rock Irrig. Dist.	Average	Average
Thompson Creek	Fair	Fair
Wagner Creek	Fair	Fair
Williams Creek	Fair	Fair

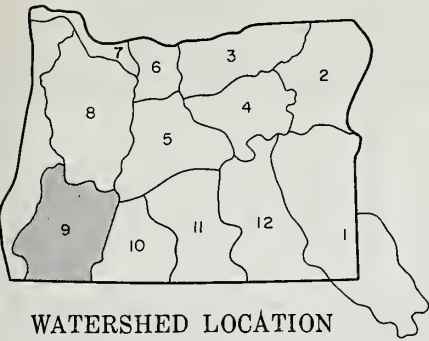
RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Emigrant Gap	39.0	25.9	0.0 ^h	7.4
Fish Lake	7.8	4.1	4.5	5.5
Fourmile Lake	16.1	4.1	4.8	9.2
Howard Prairie	60.0	19.2	13.5	- -
Hyatt Prairie	16.1	3.8	8.4	8.2

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

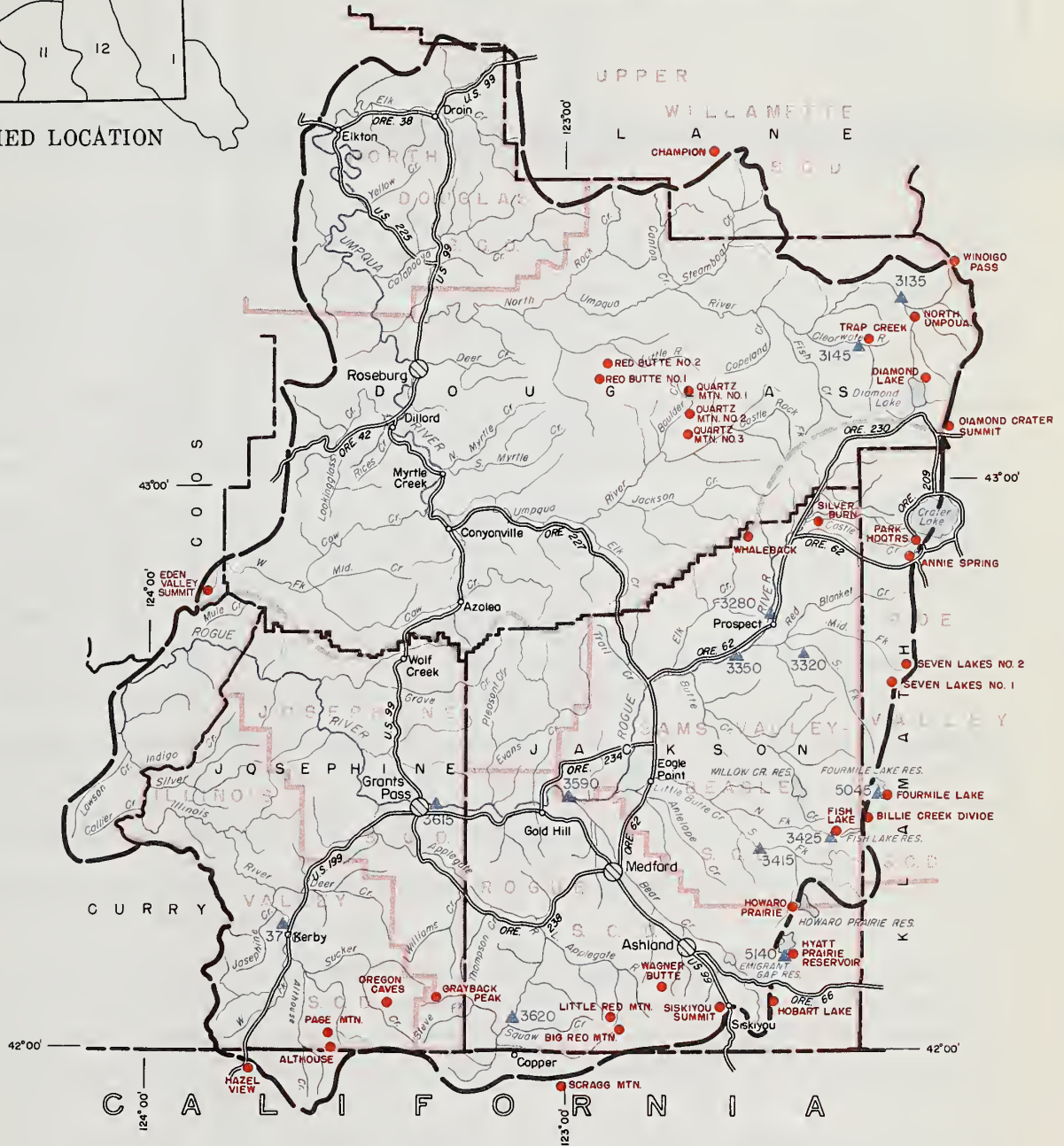
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
3620	Applegate near Copper	119	April-Sept.	131	91
3145	Clearwater above Trap Creek ^d	60	April-Sept.	73	80
5045	Fourmile Lake net Inflow ^d	6.0	April-Sept.	7.4	81
5140	Hyatt Reservoir net Inflow ^d	3.0	April-Sept.	6.2	48
3770	Illinois River at Kerby ^d	160	April-Sept.	196	82
3425	Little Butte, N. Fk. at Fish Lake nr. Lake Cr. ^d	12.1	April-Sept.	16.9	72
3415	Little Butte, S. Fk. near Lake Creek	28	April-July	42	67
	Note: Minimum flow will drop to 100 c.f.s. by May 21.				
3280	Rogue above Prospect	300	April-Sept.	351	85
		246	April-July	293	84
3320	Rogue, South Fork near Prospect ^d	70	April-Sept.	83	84
		59	April-July	71	83
3350	Rogue below South Fork	630	April-Sept.	749	84
		505	April-July	608	83
3590	Rogue at Raygold near Central Point	835	April-Sept.	1004	83
	Note: Minimum flow will drop to 2000 c.f.s. by about June 27 and will not drop below 1030 c.f.s. if summer rainfall and temperatures are average.				
		700	April-July	842	83
3615	Rogue at Grants Pass	800	April-Sept.	974	82
3135	Umpqua, North below Lemolo Res. near Toketee Falls ^d	155	April-Sept.	186	80

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not Surveyed. (h) Construction. (i) 7 of 18 sampling points. (j) Partly estimated.

ROGUE, UMPQUA WATERSHEDS



10 0 10 20 30
SCALE IN MILES



LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- - - Soil Conservation District Bdry.
- - - County Boundary
- ▲ Forecast Point
- Snow Course

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Althouse	4530	3/29	22	7.3	0.5	6.5	15
Annie Spring	6018	3/29	125	50.1	36.9	49.2	15
Beaver Dam Creek	5100	3/29	29	10.2	9.9	- -	0
Big Red Mountain	6500	3/29	75	27.1	22.5	30.2	15
Billie Creek Divide	5300	3/29	58	21.0	15.3	26.3	15
Champion	4500	3/30	66	24.8	28.9	33.8	15
Cold Springs Camp	6100	3/29	104	38.8	22.8	- -	0
Deadwood Junction	4600	3/29	16	5.2	5.8	- -	0
Diamond-Crater Summit	5800	3/27	104	36.2	29.4	- -	0
Diamond Lake	5315	3/27	65	22.1	19.8	26.7	15
Eden Valley Summit	2390	3/30	0	0.0	0.0	- -	0
Fish Lake	4865	3/30	25	9.8	5.9	14.4	14
Fourmile Lake	6000	3/30	59	23.4	25.6	29.4	6
Grayback Peak	6000	3/31	53	19.7	26.2	27.4	15
Hazel View	2500	3/29	0	0.0	0.0	- -	2
Hobart Lake	5010	g					
Howard Prairie	4500	3/29	16	4.9	4.6	- -	0
Hyatt Prairie Reservoir	4900	3/29	18	5.2	4.2	9.9	14
Little Red Mountain	6500	3/30	64	23.7	14.7	24.1	15
North Umpqua	4215	3/28	33	12.0	8.6	16.3	14
Page Mountain	4045	3/29	11	3.7	0.2	- -	3
Park Headquarters	6450	3/29	155	61.2	41.2	63.7	14
Red Butte #1	4560	3/27	52	17.4	12.7	- -	0
Red Butte #2	4000	3/27	29	9.5	0.0	- -	0
Red Butte #3	3500	3/27	23	8.0	- -	- -	0
Red Butte #4	3000	3/27	5	0.5	- -	- -	0
Red Butte #5	2500	3/27	0	0.0	- -	- -	0
Red Butte #6	2000	3/27	0	0.0	- -	- -	0
Rye Spring Spur	5000	3/30	22	8.0	7.9	- -	0
Seven Lakes #1	6800	3/28	152	56.2	46.4	60.0	14
Seven Lakes #2	6200	3/28	119	44.1	34.7	44.1	14
Silver Burn	3720	3/29	24	9.7	8.6	13.0	15
Siskiyou Summit	4630	3/30	0	0.0	1.0	4.0	13
South Fork Canal	3500	3/29	0	0.0	0.0	1.2	15
Trap Creek	3800	3/28	19	6.8	9.2	12.5	10
Wagner Butte	6900	g					
Whaleback	5140	3/28	102	35.1	27.6	38.3	14
Windigo Pass	5800	3/23	105	40.6	34.8	53.0	10

WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK - A cool, wet March brought heavy increases in the snowpack at high elevations in the mountains but left only a "fair" irrigation water supply outlook for Klamath Basin in the next six months. Stored water supplies brighten the situation some but not for users of water from Gerber reservoir where storage is 5,000 a.f. short of the 20,000 a.f. available at this date last year.

SNOW COVER - Water content of the mountain snowpack increased at abnormally heavy rates in the highest mountains but the low elevation snow which has been missing ever since the thaw following Thanksgiving has not been replaced.

Snow on the Sprague and Lost River watersheds is 78 percent of the 15 year average (1943-57) but 156 percent of last year at this date. The snowpack on the Williamson River and Klamath Lake watersheds is 90 percent of the average and 132 percent of last year.

SOIL MOISTURE - Moisture in the soil mantle (top 4 feet) continues to increase and is now quite satisfactory for spring runoff from snow-melt.

RESERVOIR STORAGE - Stored water in Upper Klamath Lake is 116 percent of average and 113 percent of last year. Storage is "short" in Gerber where it is 36 percent of average and 80 percent of last year. Clear Lake is only a bit better off with storage 47 percent of average and 67 percent of last year.

STREAMFLOW - Inflow to Upper Klamath Lake during March was 153,740 acre feet or 83 percent of the March average.

Forecasts of streamflow for the irrigation season in Klamath Basin have increased between 5 to 20 percent because of March storms. Net inflow to Upper Klamath Lake, April through September, is forecast at 70 percent of the 1943-57 average. The Sprague and Williamson Rivers, tributary to Klamath Lake, are forecast at 59 and 68 percent, respectively.

On Lost River the inflow to Gerber reservoir is forecast at 15,000 acre feet or 60 percent average for the six irrigation months. For the same period, inflow to Clear Lake is expected to be 20,000 acre feet or 40 percent average.

Water supplies in Fort Klamath Valley are expected to be only "fair" but will be better than last year.

Report prepared by
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WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Ft. Klamath Valley	Fair	Fair
Lost River (Clear Lake)	Fair	Fair
Lost River (Gerber)	Fair	Poor
Lost River (Willow Res.)	Fair	Poor
Sprague River	Fair	Fair
Upper Klamath Lake	Fair	Fair
Williamson River	Fair	Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	440.2	121.7	182.4	259.0
Gerber	94.0	20.0	25.0	54.9
Upper Klamath Lake	584.0	505.6	456.7	437.2

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

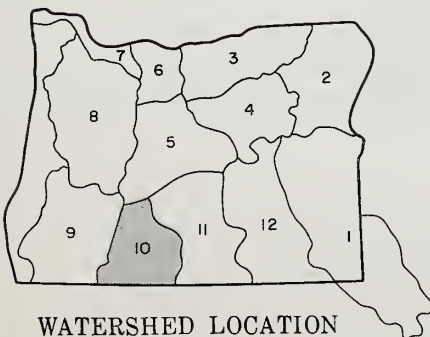
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
923	Clear Lake Reservoir Inflow ^g	20	April-Sept.	50	40
8215	Gerber Reservoir Inflow ^g	15	April-Sept.	25	60
5010	Sprague near Chiloquin	175	April-Sept.	296	59
5070	Upper Klamath Lake net Inflow ^g	440	April-Sept.	632	70
		362	April-July	518	70
5025	Williamson below Sprague River ^d	330	April-Sept.	486	68
		285	April-July	413	69

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Annie Spring	6018	3/29	125	50.1	36.9	49.2	15
Beatty (COPCO)	4300	f					
Billie Creek Divide	5300	3/29	58	21.0	15.3	26.3	15
Bly Mountain	5090	3/30	6	2.6	0.2	- -	0
Bly 101 Ranch (COPCO)	4800	f					
Chemult	4760	3/28	23	7.2	5.2	11.2	14
Chiloquin (COPCO)	4187	f					
Cold Springs Camp	6100	3/29	104	38.8	22.8	- -	0
Crazyman Flat ^e	6100	3/29	32	12.8	6.8	- -	0
Crowder Flat ^e	5200	3/29	0	0.0	0.0	0.2	9
Crystal (COPCO)	4200	f					
Diamond-Crater Summit	5800	3/27	104	36.2	29.4	- -	0
Diamond Lake Junction (97)	4600	3/27	2	0.4	3.5	- -	0
Dog Hollow ^e	4900	3/29	0	0.0	0.0	- -	0
Finley Corrals ^e	6000	3/29	48	19.2	11.5	- -	0
Fort Klamath (COPCO)	4150	f					
Gerber	4850	3/31	0	0.0	0.0	1.4	4
Harriman Lodge (COPCO)							
(Renamed Tomahawk Ski Bowl)	4200	3/31	0	0.0	- -	0.9	14
Hyatt Prairie Reservoir	4900	3/29	18	5.2	4.2	9.9	14
Kirk (COPCO)	4533	f					
Lake of the Woods	4960	3/24	22	8.3	6.0	11.9	15
Park Headquarters	6450	3/29	155	61.2	41.2	63.7	14
Pelican Guard Station	4150	3/29	0	0.0	0.0	- -	0
Quartz Mountain	5320	3/30	7	2.8	4.4	5.4	15
Quartz Mountain (COPCO)	5504	3/30	10	4.4	3.9	5.7	13
Seven Lakes #1	6800	3/28	152	56.2	46.4	60.0	14
Seven Lakes #2	6200	3/28	119	44.1	34.7	44.1	14
State Line ^e	5750	3/29	27	8.1	6.9	- -	0
Strawberry	5600	3/27	23	6.9	3.6	7.9	13
Summer Rim	7200	3/30	52	19.0	10.6	19.7	15
Sun Mountain	5350	3/30	69	23.6	20.7	29.1	15
Sycan Flat ^e	5500	3/29	7	1.8	2.3	- -	0
Taylor Butte	5100	3/27	7	1.8	0.8	4.3	14
Yamsey (COPCO)	4600	f					

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) From COPCO or USBR records of inflow. (h) Flashboards increase capacity to 513.0 (i) Water content partly estimated.

KLAMATH WATERSHEDS



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- + Aerial Snow Depth Gage
- COPCO Snow Station
- ▶ Soil Moisture Station

WATER SUPPLY OUTLOOK LAKE COUNTY, GOOSE LAKE WATERSHEDS OREGON

as of
APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

Cool, wet storms in March brought a heavy increase in snow cover, but only at extremely high elevations, leaving the water supply outlook "fair" to "poor" for Lake County irrigators.

SNOW COVER

Water content of the mountain snowpack now totals 80 percent of the 15 year average (1943-57) and 117 percent of last year at this date, but this is principally high elevation snow. The low elevation snow, which is such an important contributor to the spring runoff, is almost completely missing this year - hence streamflow forecasts have not been increased significantly.

SOIL MOISTURE

Moisture in the soil mantle (top 4 feet) under the snowpack has continued to improve and is now very favorable to the coming runoff.

RESERVOIR STORAGE

Stored water in Cottonwood and Drews reservoirs totals 19,270 acre feet compared with 27,700 a.f. last year at this date. This is only 70 percent of the average storage and further inflow is almost completely dependent upon rainfall since the low elevation snow is gone.

STREAMFLOW

Water supply forecasts for Lake County streams are all extremely low but are slightly higher than flows experienced last year except for inflow to Drews reservoir. Drews can expect an inflow of 10,000 acre feet (29 percent average) during the April-July period. Thus about 29,000 acre feet of water should be available for the Lakeview Water Users.

Flows of Deep Creek, Honey and Twentymile are expected to be about 60 to 63 percent of the 15 year average (1943-57).

Flow of the Chewaucan River is forecast at 70 percent of average, which should produce 57,000 acre feet compared with 45,000 last year for the April-June period.

Flows of Beech Creek, Bridge, Silver and Duncan Creeks as well as Moss, Willow and Crooked Creeks will be very short this year unless favorable conditions of rainfall and temperature occur.

Report prepared by
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209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Chewaucan River	Fair	Fair
Crooked Creek	Fair	Poor
Deep Creek	Fair	Poor
Dry Creek	Fair	Poor
East Side Goose Lake	Fair	Poor
Guano Lake	Fair	Poor
Honey Creek	Fair	Poor
Lakeview Water Users Assn.	Fair	Poor
Rock Creek (Hart Mtn.)	Fair	Poor
Silver-Buck Creeks	Fair	Poor
Summer Lake	Fair	Fair
Thomas Creek	Fair	Poor
Twentymile Creek	Fair	Poor
Warner Lakes	Fair	Poor

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottonwood	4.1	2.0	2.4	1.5
Drew	63.0	17.3	25.3	48.7

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE ^c
NO.	NAME				
3840	Chewaucan near Paisley	57	April-June	82	70
3715	Deep above Adel	45	April-June	71	63
3385	Drew Reservoir net Inflow	10	April-July	34	29
3785	Honey near Plush	10	April-June	16.3	61
3660	Twentymile near Adel	12	April-June	20	60

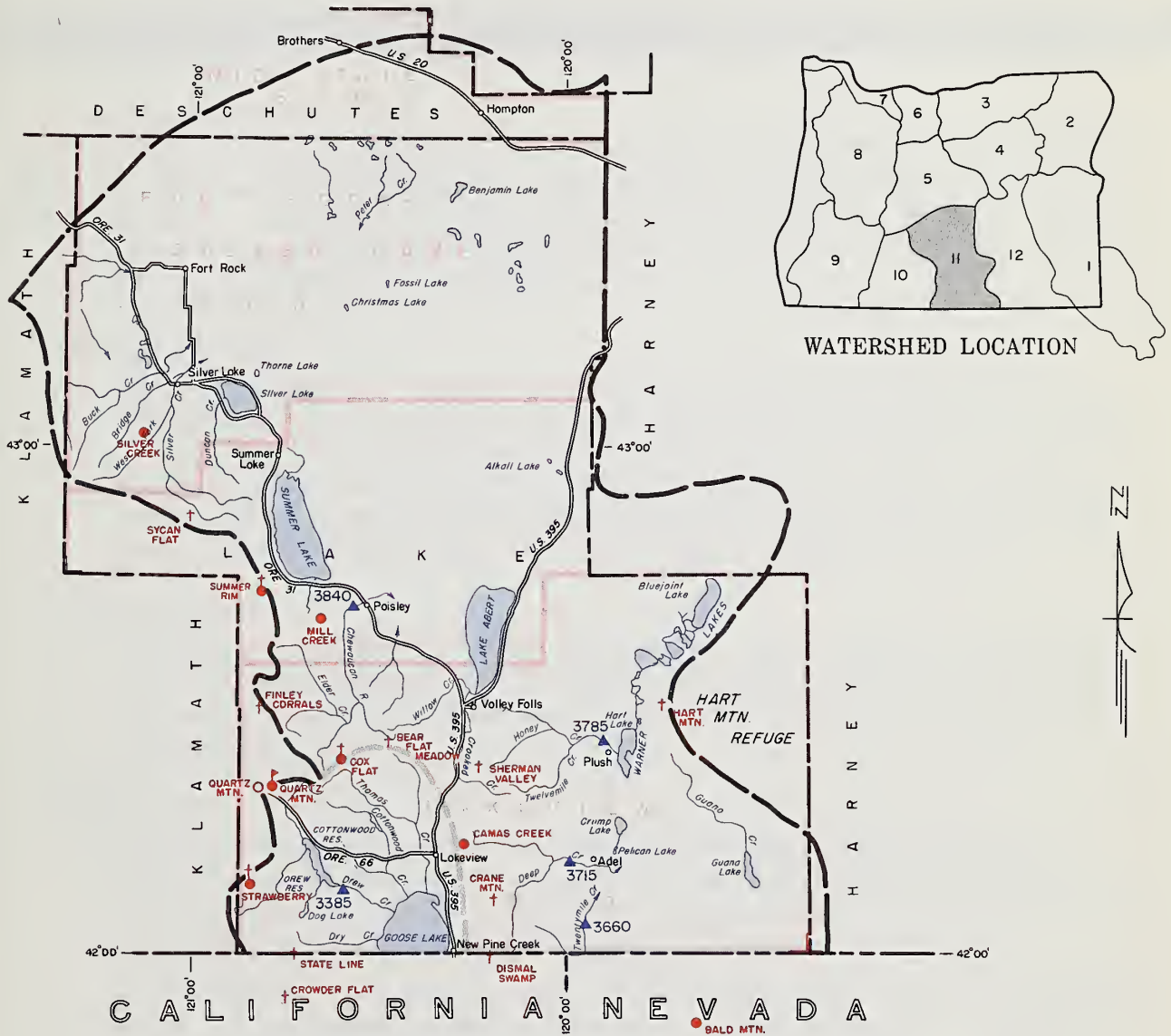
SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Bald Mountain (Nev.)	6720	3/29	6	1.4	2.3	3.1	15
Bear Flat Meadow ^e	5900	3/29	30	12.0	10.4	- -	0
Camas Creek	5720	3/26	31	9.4	9.4	11.8	15
Cox Flat ^e	5750	3/29	3	1.2	5.6	- -	0
Crane Mountain ^e	6020	3/28	10	3.0	3.7	- -	0
Crowder Flat ^e	5200	3/29	0	0.0	0.0	0.2	9
Dismal Swamp ^e (Cal.f.)	7000	3/28	54	16.2	18.4	- -	0
Finley Corral ^s ^e	6000	3/29	48	19.2	11.5	- -	0
Hart Mountain ^e	6350	3/28	2	0.6	0.0	- -	0
Mill Creek	6200	3/31	19	7.6	3.4	9.1	15
Mosquito Lake ^e (Little Bally Mtn.)	6600	3/28	6	1.4	- -	- -	0
Quartz Mountain (COPCO)	5504	3/30	10	4.4	3.9	5.7	13
Quartz Mountain	5320	3/30	7	2.8	4.4	5.4	15
Sherman Valley ^e	6600	3/28	38	11.4	10.4	- -	0
Silver Creek	4900	3/29	0	0.0	0.0	1.6	15
State Line ^e	5750	3/29	27	8.1	6.9	- -	0
Strawberry	5600	3/27	23	6.9	3.6	7.9	13
Summer Rim	7200	3/30	52	19.0	10.6	19.7	15
Sycan Flat ^e	5500	3/29	7	1.8	2.3	- -	0
Errata: (Published March 1)							
Quartz Mtn.	5320	2/24	5	2.0	6.5	6.3	15

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

LAKE COUNTY, GOOSE LAKE WATERSHEDS

10 0 10 20 30
SCALE IN MILES



WATERSHED LOCATION

LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- - - Soil Conservation District Bdry
- - - County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- COPCO Snow Station
- └ Sail Moisture Station

WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

as of

APRIL 1, 1961

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1961 water supply outlook for Harney Basin has been improved during March by above average snowfall at the higher elevations but still remains only "fair" to "poor". Streamflow forecasts increased 8 to 10 percent for the April-September irrigation season but still remain far below normal, ranging from 47 to 75 percent of average for the April-September period.

SNOW COVER

Snow cover increased at an above average rate in March at higher elevations while adding little or nothing at lower elevations, which count heavily in spring runoff. Snow in Harney Basin as a whole now averages 106 percent of last year but is still only 81 percent of the 1943-57 average period. Snow cover on the Steens is about 20 percent better than that on the Silvies and Silver Creek watersheds, again indicating a better snowpack at only the highest elevations.

SOIL MOISTURE

Soil moisture continues to increase as a result of above normal precipitation over most of the area during March. Electronic soil moisture stations average 83 percent of capacity and show good moisture penetration for the first 15 to 24 inches of the profile.

STREAMFLOW

Streamflow forecasts for the spring and summer irrigation season have been improved during March by good increases in the snowpack at higher elevations. The forecasts now range from 50,000 acre feet or 75 percent of the 1943-57 average on the Blitzen, to 50,000 acre feet or 47 percent of average on the Silvies.

Trout Creek forecast is 68 percent or 6,200 acre feet for this same April-September period. A new forecast for water users on Silver Creek indicates a little better flow than last year for the April-July period. About 15,000 acre feet is expected this year for Silver Creek as measured near Riley.

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209 S.W. FIFTH AVENUE • PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Catlow Valley	Fair	Poor
Cow Creek	Fair	Poor
Donner und Blitzen River	Fair	Fair
Mill-Coffeepot Creeks	Fair	Poor
Rattlesnake Creek	Fair	Poor
Silver Creek	Fair	Poor
Silvies River	Fair	Poor
Soldier-Prather Creek	Fair	Poor
Trout Creek	Fair	Poor
Whitehorse Creek	Fair	Poor

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

STREAMFLOW FORECASTS^a (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
3960	Donner und Blitzen near Frenchglen	50	April-Sept.	67	75
4030	Silver near Riley	15	April-July	26	58
3935	Silvies near Burns	50	April-Sept.	107	47
4065	Trout near Denio	6.2	April-Sept.	9.2	68

AVAILABLE SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	AVAILABLE CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Blue Mountain Springs	5900	42	12.0	3-27-61	8.1	8.4 ^j	9.9 ^j
Fish Creek	7600	48	9.5	c			
Folly Farm	4450	36	8.3	2-15-61	6.2	6.7 ^j	--
Silvies	6900	48	10.3	c			
Snow Mountain	6300	48	10.4	c			
Starr Ridge	5150	36	6.1	3-27-61	5.6	5.8 ^j	5.8 ^j
Stinking Water	4800	48	11.7	2-15-61	11.2	10.3 ^j	--
Willow-Bald	5000	24	4.3	2-15-61	4.3	2.2	--

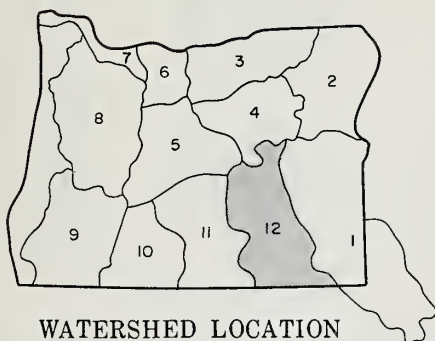
SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS IN AVERAGE ^b
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE	
Blue Mountain Spring	5900	3/27	49	13.7	12.5	16.9	15
Call Meadows ^e	5340	3/27	8	2.2	5.0	--	0
Delintment Lake	5600	3/30	19	7.4	6.6	10.0	8
Denio Creek ^e	6000	3/28	0	0.0	0.0	--	0
Disaster Peak	6500	3/26	31	10.3	7.9	12.8	9
Emigrant Butte	5000	3/30	0	0.0	0.5	--	1
Fish Creek	7900	3/28	70	25.9	18.1	27.5	14
Hart Mountain ^e	6350	3/28	2	0.6	0.0	--	0
Idlewild Camp	5200	3/28	12	3.9	3.2	5.0	15
Izee Summit	5293	3/28	23	6.1	6.1	8.6	15
Lake Creek	5120	3/27	30	8.7	8.7	11.2	15
Oregon Canyon ^e	6950	3/27	20	6.6	5.2	--	0
Riddle Creek ^e (Buck Pasture)	5700	3/27	5	1.8	4.4	--	0
Rock Spring	5100	3/28	10	2.5	4.3	4.9	15
Silvies	6900	3/28	36	12.6	14.0	14.2	13
Snow Mountain	6300	3/30	40	12.9	10.0	14.6	14
Starr Ridge	5150	3/27	12	2.6	3.5	5.9	15
Stinking Water	4800	3/21	0	0.0	0.0	0.7	13
Trout Creek ^e	7800	3/27	20	6.6	10.3	--	0
"V" Lake ^e	6600	3/28	25	8.8	4.8	--	0

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Partly estimated. (i) No Fall measurement. (j) Nearest current data.

HARNEY BASIN WATERSHEDS

10 0 10 20 30
SCALE IN MILES

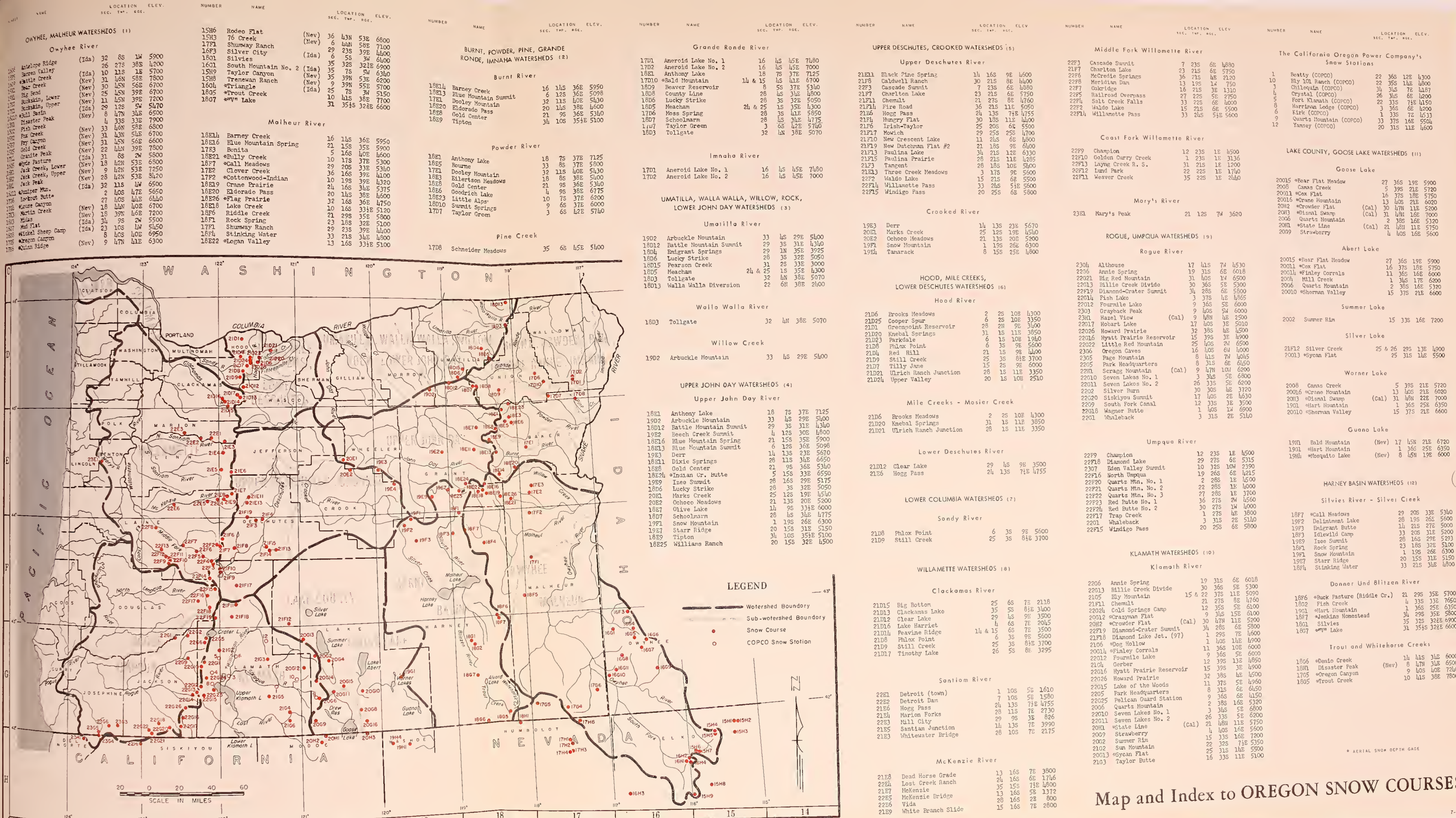


WATERSHED LOCATION

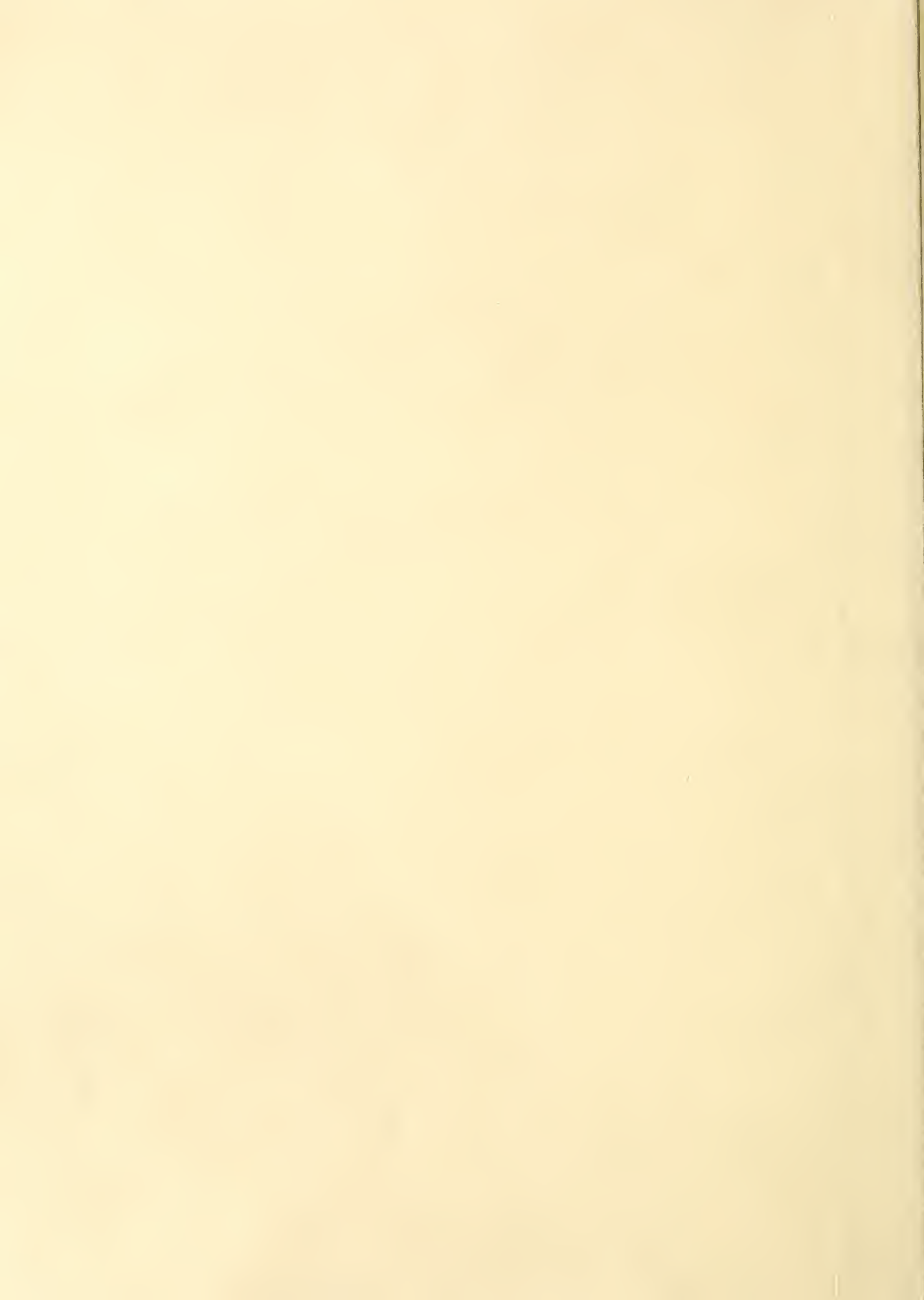


LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- - - Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- ▶ Soil Moisture Station



Map and Index to OREGON SNOW COURSES



The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon Agricultural Experiment Station
- Oregon State Engineer and Corps of State Watermasters
- Oregon State Highway Engineers
- Soil Conservation Districts of Oregon

COUNTY

- Douglas County Water Resources Survey

FEDERAL

- Department of Agriculture
 - Cooperative Extension Service
 - Forest Service
 - Soil Conservation Service
- Department of Commerce
 - Weather Bureau
- Department of the Interior
 - Bonneville Power Administration
 - Bureau of Land Management
 - Bureau of Reclamation
 - Fish and Wildlife Service
 - Geological Survey
 - National Park Service
- Department of National Defense
 - Corps of Army Engineers

PUBLIC UTILITIES

- California-Pacific Utilities Company
- Pacific Power and Light Company
- Portland General Electric Company
- The California Oregon Power Company

MUNICIPALITIES

- City of Baker
- City of La Grande
- City of The Dalles
- City of Walla Walla

IRRIGATION DISTRICTS

- Associated Ditch Companies
- Central Oregon Irrigation District
- Deschutes County Municipal Improvement District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Jordan Valley Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Talent Irrigation District
- Vale-Oregon Irrigation District
- Warm Springs Irrigation District

PRIVATE ORGANIZATIONS

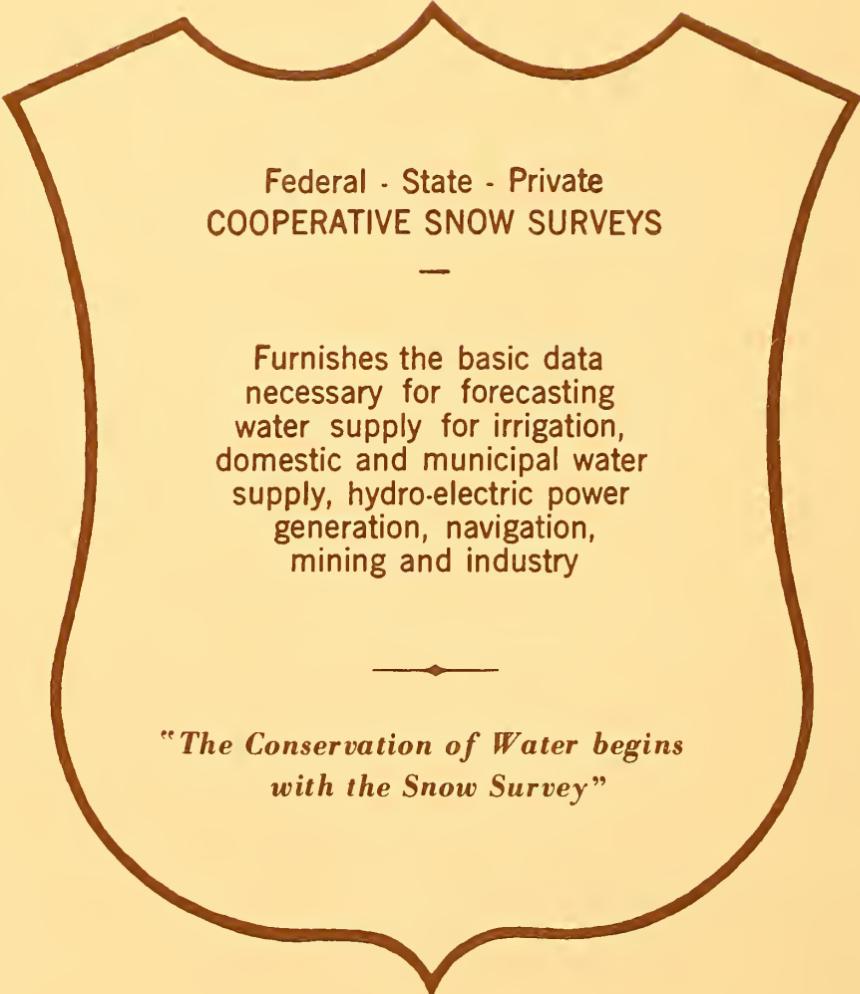
- Amalgamated Sugar Company
- The Crag Rats, Hood River, Oregon

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ROSS BLDG., 209 S.W. 5TH AVE.
PORTLAND 4, OREGON

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supply, hydro-electric power
generation, navigation,
mining and industry

*"The Conservation of Water begins
with the Snow Survey"*